The OIL WEEKLY

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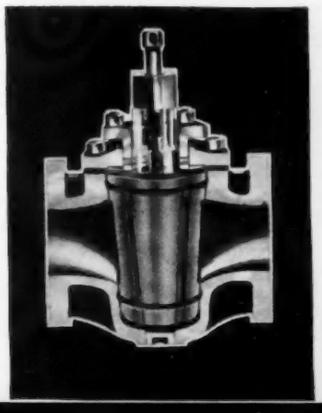

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AMERICAN CABLE TRU-LAY PREFORMED WIRE ROPE DID THE PULLING

Official U. S. Navy photograph

Pearl Harbor, Hawaii. Even Date—The 29,000 ton U.S.S. "Oklahoma" is again afloat. During months of preparation by the Pacific Bridge Company, some 50 miles of TRU-LAY Preformed and CRESCENT Non-Preformed wire rope (ranging in diameter from 1″ to 3″) was shackled to the huge ship, then in less than 69 hours operating time the "battlewagon" was pulled out of her list of 151 degrees back to within 10½ degrees of natural position.

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The OIL WEEKLY and The COMPOSITE CATALOG for the drilling-producing-pipeline industry

PETROLEUM REFINER and The REFINERY CATALOG for the refining-natural gasoline industry

THE OIL WEEKLY

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LOOKING AHEAD

. . . with the Editor

WITH petroleum itself, manpower and material all at a premium, the oil industry can no longer afford the luxury of careless depth measurements. The importance of accurate well-depth measurements is emphasized when a well reaches the testing or completion stage. The ultimate results are hinged on the accuracy of the preceding work. Lack of complete or correct data handicaps completion work, and may result in the condemnation of a producing zone, expensive repair work or obtaining of only a small percentage of the actual potentialities of a formation.

Accuracy and correlation of measurements must be maintained "from the grass roots down." A forthcoming article will discuss methods of taking well-depth measurements and other phases of this subject.

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Slush Pump Valves and Seats
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Reverse Clutches
Kelly Joints
Rig Lighting and Utility Units

We proudly fly this flag, our award for excellence in war materials production.

Here at Corsicana the Oil Industry in the Southwest and the American Well & Prospecting Company were born, when three cable tool drillers, H. G. Johnston, E. H. Akin, and Charles Rittersbacher, contracting to drill a water well for the City of Corsicana, discovered commercial oil.

Developing the field's production, the three well drillers had difficulty in getting their cable tools repaired nearer than St. Louis, so they opened a little repair shop, and named it the American Well & Prospecting Company. Shop business was flourishing when M. C. and C. E. Baker arrived with a new idea in drilling; a crude rig that made hole by rotating the bit. They turned the rig over to American Well & Prospecting Company, and went to work for the company, which promptly began improvements that put a workable Rotary Rig on the market in 1901.

From this meager but sound and practical beginning has grown, through nearly half a century of continuous progress, one of the finest and most complete lines of Rotary Drilling Equipment the Oil Industry has ever known . . . The Gumbo Buster Line. Oil men, to the "four corners" of the world use it . . . and swear by it!

Here at Corsicana:

The FIRST commercial oil well west of the Mississippi was discovered;
Oil was FIRST used to pave the streets;
Oil was FIRST used as a fuel for a railroad locomotive;
Gas was FIRST utilized for commercial purposes;
The Southwest's FIRST refinery was built;
The Southwest's FIRST pipe line was laid;
THE FIRST PRACTICAL ROTARY RIG WAS MADE.

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The Changing Panorama

Special Grease Made For Sicily Invasion

JEEPS, trucks, tanks, guns and other equipment carried by military forces that invaded Sicily were protected from ravages of the sea by a special grease hurriedly made-to-order for the job by Standard Oil Company of New Jersey. Released last week by the company, was the miracle story of a unique production job successfully accomplished.

A new grease compound, used by the British but never before manufactured in this country, was decided by the North African command as being essential for the motorized equipment to be used in the Silician campaign. A hurried telephone message from Army Ordnance, a brief description to the engineers of the product, a scramble for the materials—and soon the Baltimore grease plant had a sample off by plane for inspection in North Africa. The order was received on Friday and by Sunday, 45.000 pounds of the special grease had been shipped. Later an additional 200,000 pounds were ordered for delivery by next week-end.

Filling this hurried order almost wrecked the Baltimore plant. Makeshift mechanical arrangements placed such a strain upon the whole plant that when the later order for 200,000 pounds was received, the company's Pittsburgh refinery was called in to help on the job. The situation was so grave and of such a rush nature, that neither the company nor the War Department bothered to discuss contracts or price until the last 22,000 pounds of the order had been flown to Africa.

Record Quantity of Aviation Fuel Used

TO WHAT unprecedented heights the consumption of aviation gasoline rose during the past fortnight, one can only surmise. Events justify the conclusion, however, that military demands went to their highest peak in history. Record bombing forays on all fronts make this a certainty.

For seven straight days Hamburg has been blasted, once with 2300 tons of explosives, the largest quantity dropped in history. American flyers made the longest German raid yet accomplished. The blitz on lower Italy has been kept at a steady tempo and at the same time the cities of Sicily yet unconquered have been pounded daily and nightly. In the Southwest Pacific both the longest and heaviest raids of the war were achieved recently, the heaviest on July 21 when 150 bombers with a strong fighter escort attacked Bairoko Harbor, New Georgia, near the Japanese key base at Munda, and the longest when American airmen sprang a surprise on Japanese with a destructive raid on their main base at Soerabaja, Netherlands East Indies, a 2400 mile flight. Frequent attacks on Burma have been made, where the Allies are rapidly gaining air superiority. To complete the circle around the globe, Kiska in the Aleutians has been bombed persistently as often as weather conditions permit.

This furious pace of assault must ever be accelerated and intensified until victory is won, and we know that it will. Oil, one of the strongest links in the chain of strength to maintain such a schedule of attack must be kept where needed in abundance. This challenge strikes every American civilian squarely in the face.

Older Workers Are Doing Efficient Job

SEVERAL months ago the Westinghouse Lamp Division began an industrial experiment which is now assuming proportions of a major movement. A "middle aged corps" of workers was formed which is proving that older workers who formerly were turned away from employment offices can do an efficient job despite their age and lack of machine experience.

The "corps" includes such workers as retired lawyers, actors, auto salesmen, bankers, housewives and other older folk with no previous mechanical experience.

This group is setting a high standard of performance. They are keeping up with the younger workers in their rate of prdouction, showing great enthusiasm in their work and maintaining a low rate of absenteeism. They work the same hours, under the same conditions and handle the same jobs as younger workers and have been given no "breaks."

All in all the experiment is showing results which foretell a brighter industrial future for men and women past 40, personnel executives of Westinghouse believe.

Government Liberal In Pay Increases

THE government payroll has been increasing more rapidly than the number of employes. Increase in the monthly civilian payroll between the fall of 1939 and the spring of 1943 was 240 percent, while the number of employes rose only 182 percent.

The inflationary factor in the increased incomes of many employes has not been a bar to their advancement—a situation which contrasts sharply with that prevailing in private industry under wage and salary stabilization.

OPA has been very generous in its salary policy as shown by statistics: The agency lists 746 employes who have had salary increases of $1,000 or more and 802 employes whose initial salary was at least $1,000.00 more than their last previous compensation.

A good example of the trend in war agencies is the case of a woman economist in the Board of Economic Warfare: Shifting from a $3,200 job in the Department of Agriculture to a $3,-800.00 position in BEW on September 1, 1941 she was advanced to $5,600 on March 1, 1942, and to $6,500 on January 7, 1943.

Comment of the Byrd Committee: "The pay increases in the higher-salary brackets in certain agencies are not isolated cases but are carried on in some instances on a large scale. Such increases reflect a pirating of employes, or trends in that direction, and a disregard for basis salary classifications and dangers of inflation."

It appears that the government has failed to practice rules that it has imposed on business.

Trucks Replacing Many Tank Cars

BY USING trucks instead of tank cars for the delivery of petroleum products, oil companies in the East are making large numbers of tank cars available for shipments to the Eastern Seaboard. Efforts of oil companies to move oil to the East have received wide recognition, but the manner in which trucks have replaced tank cars for shorter and local deliveries has received little attention.

The manner in which the oil industry has tackled this part of the transporta-

tion problem has helped prevent the shortage of gasoline from becoming more acute than it is in this area. For example, more than 500 industrial customers along the Eastern Seaboard and in western Pennsylvania and Ohio, of the Atlantic Refining Company alone, who formerly received their shipments by tank car, are now being supplied by trucks.

Work on this conversion program began shortly after Pearl Harbor, when need for tank-car transportation to the East became apparent. As a result of this change in distribution methods, large additional volumes of oil are moving to the East. Efforts of The Atlantic Refining Company are estimated to have provided tank-car transportation sufficient to haul approximately 11,000,000 gallons of crude oil per month from the Texas fields to the East. Other companies have done the same thing.

Improved Equipment Likely After War

ENGINEERING developments among equipment manufacturers during the past year have been largely confined to speeding the war effort. Many improvements, because of their military value, cannot be released to the public until the war is over. Probably most attention has been paid to changes and improvements in existing lines to facilitate production and take advantage of improved and substitute materials. Also unquestionably compactness in design and simplicity of construction are keynotes of most manufacturing policies at this time.

However, the imagination is stirred with thoughts of things to come when victory is finally won and industrialists once more turn their efforts to peacetime pursuits. All wartime advances in technology, design, construction and operation of equipment will be swiftly used to further the normal course of our economy. The oil industry will be bound to benefit greatly from such advances. It is practically a certainty that equipment in use at the beginning of the war will be found obsolete when industry goes back to a peacetime footing.

Electron tubes, of which there are now over 750 different kinds, have already opened up a new world and created a completely new industry. Application of this force to new equipment may well presage a revolution in oil field technique. Plastics offer possibilities that will be studied carefully. Gas turbines as prime movers in future power plants are seen as a probability. Utilization of the new, light-weight metals in post-war equipment is likely to be widespread. Alloys that show promise of operation at temperatures of 1500° F. can have a predominant influence on equipment of the future. These are but a few of the significant trends. The equipment world of tomorrow may well be the most thrilling and startling of any mechanical era yet known.

All Industry Can Help Save Paper

GOVERNMENT officials declare that the United States faces a more severe shortage of paper, and that a drastic paper cut October 1 is almost a certainty at this moment. All industry can help meet this crisis. Savings made now will reduce the severity of future cuts.

Paper is an important item in industrial operations. Actually, an absolute lack of paper could all but stop a plant cold. Without letterheads, you cannot write for quotations. Without purchase forms, you cannot buy. Without time cards, payrolls, employment records, continuous forms, memoranda, blueprints, etc., it would be almost impossible to keep a plant or office running.

Were is not for great savings made by industry, by newspapers and magazines, many believe we would now be gripped in an unprecedented shortage. But offsetting the savings made are new war demands. In the case of commercial paper alone, 1943 demands are expected to outweigh the prospective supply by nearly 40 percent. Worse still, rising government requirements will leave industry in 1943 only about 50 percent of its 1942 consumption.

OIL FIELD WORKER'S LAMENT
. . . or What the 'ell

We're not the Yanks who run the tanks,
We cannot share their glory.
We're just the blokes who change the chokes,
Each day the same old story.

We're not the guys who rule the skies
We win no silver wings.
We're just the clods who wrench the rods,
No one our praises sings.

We're not the gobs who get the jobs
To sink the Axis' navy.
We're just the chumps who run the pumps
To get the needed "gravy."

We're not Marines who man machines
That make the victory ring.
We only toil to get the oil
That runs the whole darned thing!

—DICK EMERSON, Southwest Texas District Superintendent, Pan American Production Company.

WPB officials urge every top management to make a competent operating executive responsible for the application of these principles in each plant. And here is a brief check-list for the further guidance of the paper-saver:

(1) Use 8½ x 5½-inch letterheads for short letters; inclose them in small envelopes.
(2) Review all printed forms periodically for essentiality; consolidation; elimination of waste space; standardization of sizes, weights, color, grade; elimination of color where possible.
(3) Use smaller type sizes and margins. (Any competent printer can point the way to pronounced savings).
(4) Cut the weight of paper stocks.
(5) Condense letters and memoranda by (a) keeping margins as narrow as possible; (b) sticking to single-space forms; (c) using reverse side of incoming letters as first carbon copy of replies; (d) using reverse side of second sheets for carbon copies; (e) using both sides of all mimeographed sheets.
(6) Control disbursement of paper supplies to workers so that excessive quantities do not accumulate in desks and departmental supply closets.
(7) Make scratch pads from stocks of obsolete letterheads, memorandum forms, and other unused inventory.
(8) Use and re-use carbon paper consistently.

Fuel Oil Conversions Save Vast Quantities

CONVERSION of industrial and commercial fuel-oil-burning facilities to the use of coal now represents an annual saving of 59,710,000 barrels of oil, according to figures compiled by PAW. These figures do not include amounts saved by conversion of home heating plants, which also represent a sizeable quantity.

Breakdown of the figures show a saving of 47,055,903 barrels in District 1; 9,375,554 barrels in District 2; 1,300,790 barrels in District 3; 110,493 barrels in District 4; and 1,967,290 barrels in District 5.

Meanwhile, a program to gain further conversions in the Middle West (District 2) has been augmented jointly by PAW-WPB. The goal is 15,000,000 barrels annually, or nearly 6,000,000 barrels more than at present.

Factors Relating to Joint Use of Facilities And Usable Material Reclamation

By C. E. SUTTON, Chairman,
Joint Use of Facilities and Reclamation Sub-Committee for District 3

The potential possibilities of widespread program of joint use of facilities and reclamation of equipment that can be dispensed with are impressive, but involve numerous factors

By authority of Deputy Petroleum Administrator Ralph K. Davies in letter dated October 1, 1942, the petroleum industry was authorized and requested, subject to Administrator Harold L. Ickes' approval of personnel, and acting through the constituted production committees of the respective districts, to initiate a survey that may influence field operations materially. The purpose of this survey was to determine the potential possibilities for securing usable oil-producing material and developing to the fullest extent the joint use of existing facilities, so that more efficient use of both equipment and manpower might be affected.

It was rather definitely indicated that the scope and extent of the survey should be based on the following assumption:

a. That in order to maintain an adequate supply of petroleum and petroleum products for successful prosecution of the war, the petroleum industry must maintain, and perhaps on an increasingly greater scale, the exploration for new reserves and the development of existing and potential reserves.

b. That in order to meet the above requirements, a major portion, and in extreme emergency all, of the material for such work will of necessity have to come from within industry and from sources to be developed as a result of this survey.

On the foregoing premise a number of meetings were held by the Production Committee of District 3, working in close collaboration with representatives from the Washington and district office of PAW. As a result of these meetings it was decided to divide District 3 into nine general areas, from which one or two representative areas would be selected for study.

In making these selections, consideration was given to selecting representative types and grades of fields; that is, piercement-type salt dome, and non-piercement-type salt dome fields, marine operated fields, fields representative of both new and old fields, etc. In this way it is hoped that many of the thousand fields in District 3 may be classified according to the fields studied under this survey with sufficient accuracy to estimate them, and in some cases to eliminate fields from consideration. Also from the results of this initial survey it may be possible to streamline the reports and procedure on the balance of the fields.

Personnel

While only 14 representative fields were selected, it proved to be a job of some magnitude to get the personnel selected and approved. Much credit is due these groups for the time and effort they have put forth to carry on this work. This was done in the face of reduced personnel, difficulty of transportation and added burdens placed upon the industry's workers generally. In general the personnel of each study group comprised representatives of the geological, operating, engineering and material departments.

Figure 1 is an organization and assignment chart covering personnel and fields for study.

Form and Prosecution

Probably the most difficult phase of the project was the development of a desirable form and the clarification of the procedure to the study groups. While it was stressed that the obtaining of the basis data was to be conducted on a strictly voluntary basis, it is obvious that there could not be drawn any hard and fast rules of procedure. This makes for a highly abstract solution and much, of necessity, has to be left to the judgment of the study group. Obviously, under these conditions, many questions arise with attendent uncertainty as to procedure. To clarify this as much as possible, scheduled meetings were arranged with each of the study groups meeting with the Washington PAW representative. These meetings proved quite successful in supplementing the written instructions furnished each study group member.

Figure 2 is a form of reclamation sur-

vey of usable production material. It will be observed that this form attempts to catalog the material according to its utility or possible service rather than attempt to make a regular material inventory. Also the amount in tons was asked for in calendar quarters: This is desirable as obviously all the material could not be made available at once and furthermore the scheduling of material requirements by WPB are by quarters. Coincidentally, with the investigation of usable reclaimable material, the study groups were asked to consider the matter of the joint use of facilities and report back what is currently being done and what could still further be done to alleviate the material and manpwoer shortage. As a guide in this study a number of suggestions were submitted. These are shown in Figure 3 as an appendix to this article.

The list of possibilities in effecting joint use of facilities is quite impressive. As we all know, the problem of manpower is about as critical, if not more so, than that of material, and many suggestions on the joint use of facilities particularly represent a more efficient use of the available manpower.

Aside from the direct obligation of furthering the war effort the effecting of many of the suggestions will result in a substantial cost saving to the operators themselves.

Results

To date 9 study groups, or 63 percent, have filed their report and the balance should be in within the next two weeks.

From the reports now in it appears that the reclaimable usable material per field varies from 260 to 5650 tons, with an average of 2400 tons for the fields considered. It is emphasized, however, that the recovery of this material would, partially at least, be at the expense of prematurally abandoned production. Furthermore the greater part of it would only be applicable to relatively shallow wells. Most of the available material has been in use 10 years or more and the machinery items especially are not comparable to modern equipment. Due to the tendency of recent years toward wider spacing and curtailed producing rates, the newer fields show very little in the way of reclaimable material. In the older fields the ravages of corrosion have been severe. A very small percent of the material would be applicable to development in the Gulf Coast or for wells over 5000 feet in depth.

Some investigation was made to determine the relationship of reclaimed material to the total material purchased. A review of some major companies would indicate that over the past 4 years the material reclaimed is 10 or 11 percent of the total material purchased with the indication that such reclaiming has been at an accelerated rate in the years 1942 and 1941. Obviously at the accelerated rate it is simply a question of time until the supply of such material is exhausted. Obviously also the industry has always pursued the policy of utilizing existing material on hand when applicable and economically expedient.

As pointed out other factors involved in the reclamation of much of the material is the shortage of manpower that would be involved in such work.

Summary

Reports from 63 percent of the intial 14 fields are in, but have not been tabulated or summarized. The general conclusion based on reports now available are given. It is hoped that the completed report will be of value to the PAW agency in Washington, in accurately presenting the material situation as respecting the oil-producing division of the industry.

FIGURE 1
District 3 Organization and Assignment Chart

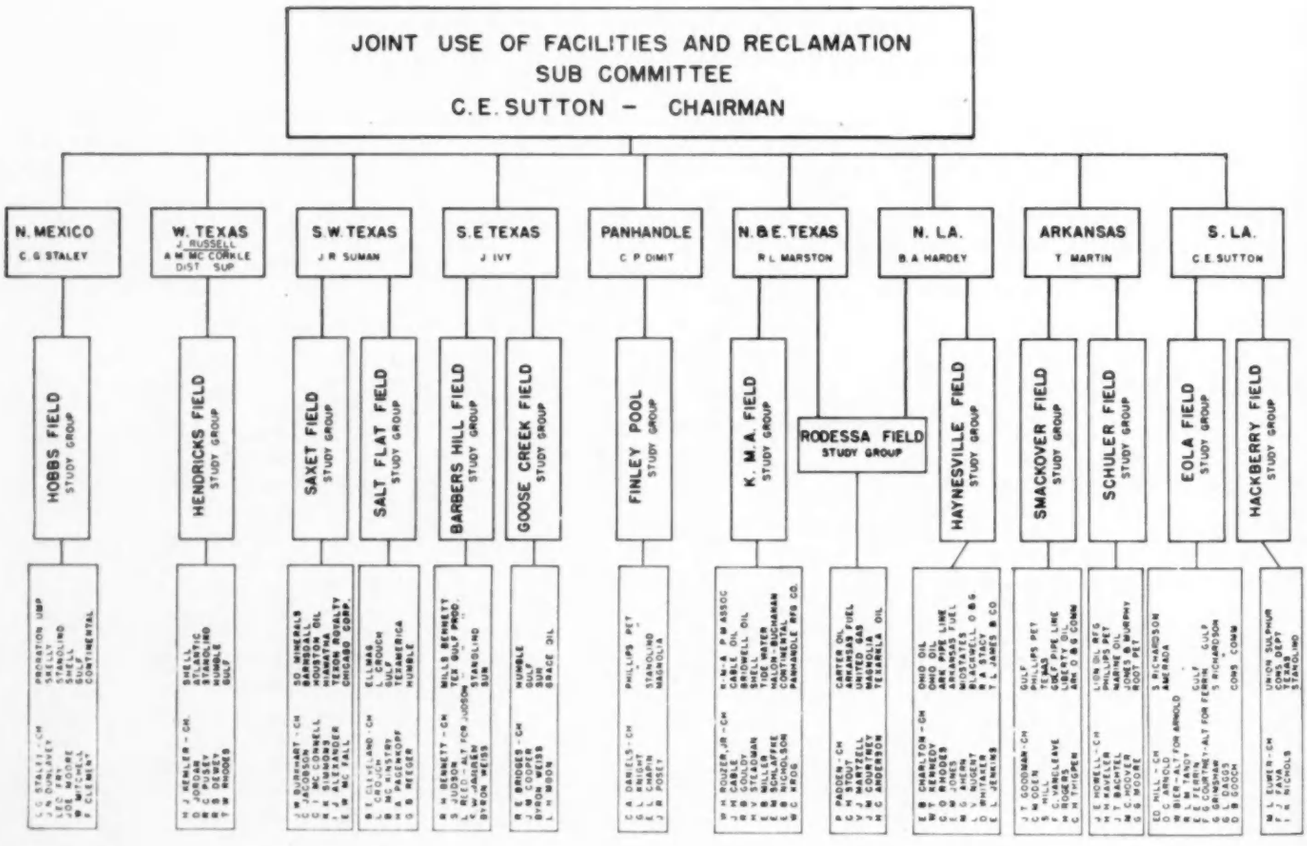


FIGURE 2

Reclamation Survey of Useable Production Material as Authorized by the Petroleum Administration for War

	1st Quarter		2nd Quarter		3rd Quarter		4th Quarter		Total	
	Amount	Tons	Amount	Tons	Amount	Tons	Amount	Tons	Amount	Tons
I. WELL COMPLETION EQUIPMENT										
1. Casing and Tubing:										
Conductor Pipe 13⅜" and over										
Surface Casing suitable for setting to 1,000'-1,500'—8⅝" to 13⅜" inclusive										
Surface Casing suitable for setting to 3,000'—8⅝" to 13⅜" inclusive										
Protection Casing suitable for 6,000'-10,000'—7⅝" to 10¾" inclusive										
Oil String suitable for setting to depths less than 5,000'										
Oil String suitable for setting 5,000' to 8,000'										
Oil String suitable for setting 8,000' to 11,000'										
Tubing suitable for setting to 8,000'										
Tubing suitable for setting to 11,000'										
2. Wellhead Units:										
Casingnests:										
2,000 lb. Test and under										
4,000 lb. Test										
6,000 lb. Test										
10,000 lb. Test										
Christmas Trees:										
2,000 lb. Test and under										
4,000 lb. Test										
6,000 lb. Test										
10,000 lb. Test										
Additional Valves:										
2,000 lb. Test and under										
4,000 lb. Test										
6,000 lb. Test										
10,000 lb. Test										
II. LEASE EQUIPMENT										
1. Line Pipe:										
2" and smaller										
2½", 3" and 4"										
Over 4"										
2. Oil and Gas Separators:										
125 lb										
500 lb										
1,000 lb. and over										
3. Tankage—Total Barrels:										
4. Pumps, 4" x 6" and Larger:										
5. Miscellaneous Fittings:										
Including meters, regulators, heaters, etc.—Tonnage only										
III. LIFTING EQUIPMENT										
1. Geared or Chain Driven Pumping Units Less Prime Mover:										
Suitable for wells less than 3,000' deep										
Suitable for wells 3,000' to 5,000' deep										
Suitable for wells deeper than 5,000'										
2. Standard Rig Fronts—Steel:										
3. Countershafts and Clutches:										
4. Pump Jacks:										
Suitable for wells less than 3,000' deep										
Suitable for wells 3,000' to 5,000' deep										
5. Geared Central Powers Less Prime Movers:										
6. Band-Wheel Powers Less Prime Movers:										
7. Hydraulic Pumping Systems Complete:										
8. Submersible Electric Pumps:										
9. Surface Rods:										
Suitable for wells less than 3,000' deep										
Suitable for wells 3,000' to 5,000' deep										
10. Sucker Rods:										
Suitable for wells less than 3,000' deep										
Suitable for wells 3,000' to 5,000' deep										
Suitable for wells over 5,000' deep										
11. Compressors and Prime Movers:										
12. Derricks:										
150,000 lbs. A.P.I. Capacity or Less (5 x 5 x ⅜ starting legs or less)										
Over 159,000 lbs. A.P.I. Capacity										

	1st Quarter		2nd Quarter		3rd Quarter		4th Quarter		Total	
	Amount	HP	Amount	HP	Amount	HP	Amount	HP	Amount	HP
IV. OTHER EQUIPMENT										
1. Machinery:										
Internal-Combustion Engines (Gas, Gasoline, Butane)										
0— 10 HP										
11— 25 HP										
26— 50 HP										
51—150 HP										
Over 150 HP										
Diesel:										
0— 10 HP										
11— 25 HP										
26— 50 HP										
51—150 HP										
Over 150 HP										
TOTAL USEABLE MATERIAL—Tons										
V. JUNK—Tons										

	1st Quarter		2nd Quarter		3rd Quarter		4th Quarter		Total	
	Amount	HP/KVA	Amount	HP/KVA	Amount	HP/KVA	Amount	HP/KVA	Amount	HP/KVA
VI. ELECTRICAL EQUIPMENT										
Motors:										
0— 10 HP										
11— 25 HP										
26— 50 HP										
51—150 HP										
Over 150 HP										
Generators:										
(0—12½ KVA AC)										
(0—10 KW DC)										
13—37½ KVA AC										
38—100 KVA AC										
Over 100 KVA AC										
Transformers:										
0— 10 KVA AC										
11—100 KVA AC										
101—350 KVA AC										
Cable and Wire:										

FIGURE 3
Summary of Suggestions for Joint Use of Facilities

1. Cooperative arrangements or agreements between the engineering departments of producers relative to exchange of engineering data as to lease lines, locations and elevations, including the results of surveys in any oil field or area under exploration or exploitation.

2. Cooperative agreements between operators relating to planning and construction of roads and drainage facilities, in any oil field or area under exploration or exploitation.

3. Appropriate arrangements between operators to use available derricks and drilling rigs near locations to be drilled, in lieu of moving same from distant points.

4. Exchange agreements between operators of identical warehouse material for drilling, completing and operating when such exchange will save transportation.

5. Joint use, in certain oil fields or portions thereof, of salt-water-disposal facilities, operated by joint employes.

6. Joint voluntary agreements as between adjoining leaseholders in such cases where agreeable and practicable, under the provisions of which manpower may be conserved and more efficiently utilized.

7. Staggering of production, wherever possible, between leases to permit the more efficient and economical utilization of manpower, material and transportation facilities.

8. Voluntary agreements, where applicable, for the joint use of facilities and employes on nearby properties to save transportation and manpower.

9. Pooling of pulling equipment and roustabout crews for well servicing work in an area.

10. Wildcat Drilling: In the sense that the number of wildcat wells to be drilled could be reduced through cooperative effort, probably nothing could be accomplished, since not enough such holes are being drilled as it is. However, for the drilling of such holes, just as in the case of field well drilling, materials and labor might be exchangeable to cut down on distance of transportation between wildcat locations and stations where such facilities are kept. Also, cooperation in the daily routine transportation of materials and men during the progress of drilling might be possible where two or more wells are being drilled not too many miles apart and are being supplied from the same town. This kind of cooperation should be worked out through committees having to do with the use and allocation of oil well supplies and through the production departments of the operating companies.

11. Exploration Methods: The former duties of scout organizations have been further simplified in recent years with reference to collection of well samples and elevation data. In many districts, now, there are "cutting rooms" where samples from the wells in the area are divided into equal portions, which are labelled and distributed to the companies subscribing to such service. Likewise, there are elevation companies that make it their business to run well elevations and to send their determinations to their subscribers. In other words, cooperative schemes for the collection of data used in subsurface geology have already reached a fair degree of efficiency. Nevertheless, this phase of the industry could bear investigation to see whether further cooperation would be possible. For instance, some plan of cooperation between elevation service companies and the engineering departments of the operating companies might somewhat reduce the work of running locations and elevations.

12. For interpretation of the subsurface geology, electrical logs and paleontological determinations are very important. On the former, cooperation is practical; on the latter, it is not. Every facility should be given for the distribution of electrical logs. Some states require their filing; others do not. In any case, these logs should be made available since, in their study, geologists find help toward an understanding of the geology and, we may add that such logs should be available to the geological profession whether they represent holes drilled by the industry or holes drilled by the army or the government. Recently, we are advised, water wells have been completed on camp properties for the army and the electric logs of these holes have been refused.

13. It is also doubtful whether much reduction of effort would be practical in analyzing water samples and core samples from wells because of differences in the techniques used by different companies, but this is a phase of work which might be further examined for possible cooperation in securing the laboratory data.

14. Reconnaissance geophysical work, whether this be by gravity, magnetics or seismograph, is not susceptible of cooperative management and application, since there are too many factors involved which have to do with distribution of acreage, cost of leases, et cetera but, on the other hand, where two or three or four companies have a mutually solid block of leases, cooperative geophysical (usually seismographic) exploration of the whole block should be possible on a pro rata cost basis.

15. We must concede that reduction of geophysical mapping in any area, large or small, in reconnaissance or in detail, would not be practical. In these times, when the finding of new pools is becoming more and more difficult, every encouragement should be given to promoting the research aspect of geophysical exploration.

However, there are some ways in which economy of time and personnel would be possible. For most kinds of geophysical work, elevations of observation stations are determined. These stations are usually marked by temporary flags or monuments. If a mutual plan could be arranged between geophysical departments by which, here and there throughout an area under examination, the elevations of a relatively few permanent objects could be run and these elevations and the descriptions of the objects could be made available for later reference points for subsequent surveys, much time would be saved in the end. At first a little extra time would be necessary but the ultimate value of this plan would be considerable.

16. For certain kinds of geophysical work daily weather reports are essential. At the present time, this kind of work is handicapped because the army forbids the release of weather reports. Some effort should be made to put into execution a plan for distributing the needed weather data to properly authorized geophysical organizations.

17. Revision of our present federal labor laws, permitting the oil industry to work its men 56 hours a week without time and a half for overtime, or double time for the seventh day of any week.

18. Encourage agreements among operators to utilize one pumper or gauger where four or five are employed. This idea is applicable, particularly to independent producers, a great many of whom have small leases with one or two oil wells to the lease. There are a great number of small oil fields, the ownership of which is divided among a number of operators. In many cases, one gauger could take care of the production of the entire field.

19. Decrease the number of oil wells drilled without decreasing the daily allowable production. This may be accomplished by prevailing upon the regulatory authorities of the various states to establish 100 percent acreage proration in all the new fields and in all other fields only partially developed; then permit drilling units in such fields, at the option of the operator, to be as large as 160-acre units. A well located on 160 acres would be given a daily allowable of four times what a well on 40 acres is given. Under these rules, the operator would drill one well instead of four, in most cases.

20. Pooling of drilling crews or, in case of a large operator, a better scheduling of drilling operations; this recognizing the difficulties of keeping good drilling crews unless continuous work can be provided for them. The benefits of such action are obvious.

21. It is suggested that, particularly in areas having a multiplicity of operators the pooling of well servicing units and application of better engineering as regards pumping operations, would result in the more efficient lifting of oil or fluid.

22. In the matter of equipment, we find numerous cases wherein equipment is manufactured in one area—let us say California—and is used in another area—let us say Oklahoma—whereas, competitive equipment is also made in Oklahoma and, while some is used in Oklahoma, still a certain quantity of the Oklahoma product is also used in California. This is a perfectly natural situation in normal times, operating under a competitive system, but is certainly questionable in times like these. Numerous examples may be cited of this situation. While it may not be possible to entirely reallocate areas or zones of manufactured articles, still, no doubt, if the problem were thoroughly analyzed, much could be accomplished along this line.

23. Utilization of idle equipment in local areas by currently active operators might involve centralization of warehouse facilities, truck and automotive

[*Continued on page 14*]

Shallow Wells Cleaned With Air and Water Through Tubing

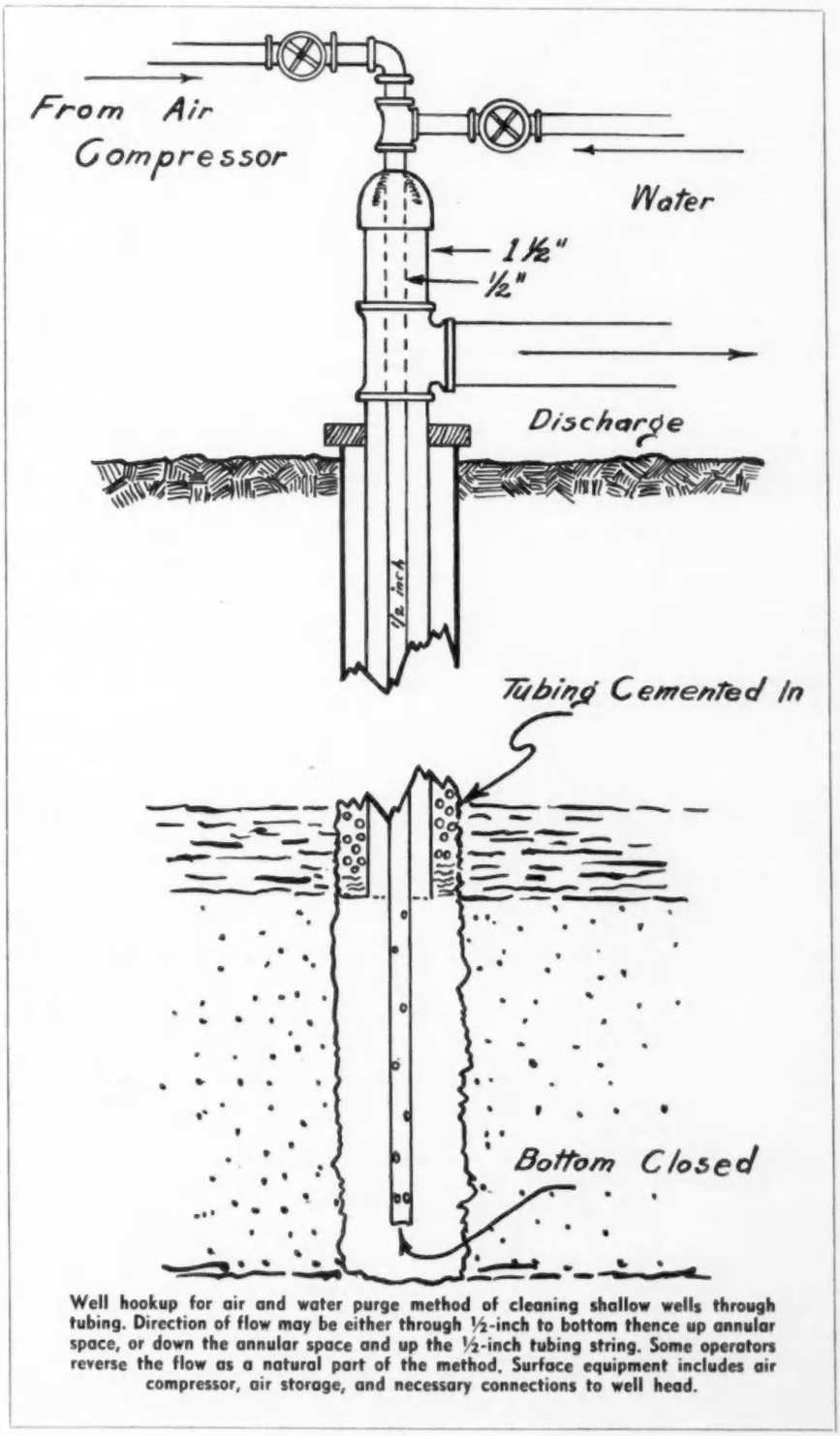
By FRANK B. TAYLOR, Staff Writer

Method is quick, satisfactory and inexpensive, particularly where tubing string has been cemented in place

OPERATORS handling shallow production have developed a combined air-water purge to clean wells. The method makes use of injected air under 100-pounds or more pressure, water either from the formation or added, and connection equipment. Although the idea is not new in principal, the present adaption overcomes many of the problems peculiar to shallow production. The method is applicable as described to any shallow producing area, and can be varied to meet local conditions.

A constant matter of concern to the operator of either secondary or primary properties in areas where production is at less than 1400 feet, is the condition of the hole below the casing seat. There are a number of factors that make this true, and they all bear upon the subject. The first is pressure, which at the shallow depths is considerably less than the pressures found where the hole goes to 3000 feet or more. With less pressure combined with less entrained gas than is found in deeper formations, there is less energy to flow the crude into the hole to be picked up by the pump. Consequently, relatively small amounts of scale or caving seriously impede natural drainage. Furthermore, water is usually present in these old wells. This is an additional cause of scale formation through deposition of carbonates and mixed compounds upon the face of the pay. Back within the formation these compounds are believed to be in solution and in a state of stabilization. However, when vented into the well bore, stability of the solution is completely disrupted and the dissolved compounds are precipitated in the form of scale. Normal caving or sluffing of the face of the pay adds to the problem.

Due to the light production normally to be gained from the operation of shallow wells, there is but a slight margin of profit that can be earmarked for



Well hookup for air and water purge method of cleaning shallow wells through tubing. Direction of flow may be either through ½-inch to bottom thence up annular space, or down the annular space and up the ½-inch tubing string. Some operators reverse the flow as a natural part of the method. Surface equipment includes air compressor, air storage, and necessary connections to well head.

periodic cleanouts. Unfortunately, the cost of cleaning out a well by normal means does not decrease in proportion to a decrease in depth. Just about the same mechanical equipment, the same transportation, and the same man-hours are required for the 1000-foot well as for the 3500-foot one.

Many of the shallow operations have been re-developed as secondary recovery projects, using water, air or gas injection as a prime mover. In many such projects, although the practice varies with different operators, tubing strings are cemented into the hole to act either as injection equipment or as a production string. Some water flood operations, particularly those in which the production is flowed to the surface rather than lifted by ordinary pumping, make use of a cemented string. Also, the regular injection well may be so equipped. In some operations, casing has rusted away and as the value of the well is insufficient to pay out a new casing string, the hole has been allowed to cave in against the tubing.

These limiting conditions have been overcome in the cleanout methods now being applied on some shallow properties in northeast Oklahoma and southeast Kansas. The procedure does not require the removal of the tubing string.

Regular equipment for this means of cleaning out includes a two-stage air compressor, preferably driven by a gasoline engine. While the 600 to 700 pounds usually available with a two-stage compressor is not used in a routine cleanout operation, it is desirable to have this pressure at hand in case of need. A chamber suitable for compressed air storage, either mounted upon the same frame or mounted as a unit, is required. One operator has used a short length (about 16 feet) of 12-inch casing, orange-peeled at both ends, and with 1½-inch connections set into the welds. This, including 1½-inch pipe swings to afford flexibility in locating the units with respect to each other, is mounted upon a light frame and wheels so that it may be trailed to any location.

A string of ½-inch equivalent to the depth of the well is also needed, as is an adapter between the 1½-inch and the ½-inch. This is easily made from a 1½-inch collar, welded in an orange peel and cut through the center for the insertion of a short, ½-inch nipple. A tee on the 1½-inch above the well head serves as an outlet for the cleanings from the well.

In operation, air pressure at 100 to 150 pounds is fed into the well through the macaroni string after it has been lowered to a position opposite the face of the pay. There should be some water in the hole, and this is usually available from the formation, or if necessary by injection from the surface. Agitation produced by the air pressure escaping through perforation near the bottom of the ½-inch blasts the water against the face of the formation and into any accumulations of cavings. The air escaping up the annular space between the ½-inch and the 1½-inch carries the dirt to the surface. It is usually desirable to keep the bottom of the ½-inch closed, particularly if most of the force is to be directed against the side of the hole.

While this method, which is shown in the accompanying sketch, is quite efficient, there is some slippage of broken scale and sand in the annular space. In some wells it has been found desirable to reverse the direction of flow by putting the air down the annular space, and exhausting through the ½-inch. Also, reversal of the operation apparently results in a more complete job. Whatever flow direction is used, occasionally there will be a plug formed by a pebble in the macaroni tubing or in the annular space. Increased pressure usually frees this stoppage although sometimes it is necessary to lift the string to break the plug loose.

The same equipment, with the addition of a length of flexible hose to connect to the top of the ½-inch, can be used to clean or wash down the inside of the tubing string. Air or air and water is fed into the hose as the ½-inch is run into the hole, the perforations directing the fluid against the inside of the tubing. If a thorough wash is required, the elevators can be used to lift the ½-inch up and down through the length of one joint.

This method of cleaning out, particularly applicable to shallow wells in which the tubing string is cemented or fixed, is quick and satisfactory. It is possible to purge clean 6 or 7 wells per day if the ½-inch tubing is in place as the compressor and air storage are moved from location to location. Both the equipment and the application are sufficiently inexpensive to make the method practical for shallow operation.

Suggestions for Joint Use of Facilities

[*Continued from page 12*]

equipment and, particularly, marine equipment.

24. Important savings of material can be made in oil well casing and tubing strings by selecting the minimum practicable sizes and weights. Particular attention should also be given to the use of smaller tubing strings as, for example, the substitution of 2-inch instead of 3-inch tubing whenever this is practicable and the same consideration should be given to conserving steel by installing smaller size pipe in flow lines, lease lines, et cetera.

25. Because of the incipient shortage of oil field power units, the wider application of new and used automobile engines in the oil fields is being encouraged by PAW.

26. A revised survey by one company of its tankage led to the elimination of three 140,000-barrel tanks, each equipped with floating roofs, which were at the moment being fabricated. Tankage should be used more effectively.

27. One of the most critical materials is welding rod. The War Production Board has recently issued Conservation Order L-146 covering its allocation. In connection with this order, they have made certain recommendations which should be strictly adhered to. They are reproduced as follows:

"1. Every electrode must be burned to the end of the coating.

"2. Short sections of rods must be fused together so that all rods are consumed in their entirety.

"3. No electrodes shall be bent unless it is absolutely necessary to do so to reach inaccessible point if such bending will damage the coating.

"4. Operators must use the largest diameter electrode possible for any given type of work.

"5. All miscellaneous maintenance and repair work shall be done with dust coated, dipped, and border line factory rejects electrodes unless it can be proven that such grades of materials cannot possibly be used."

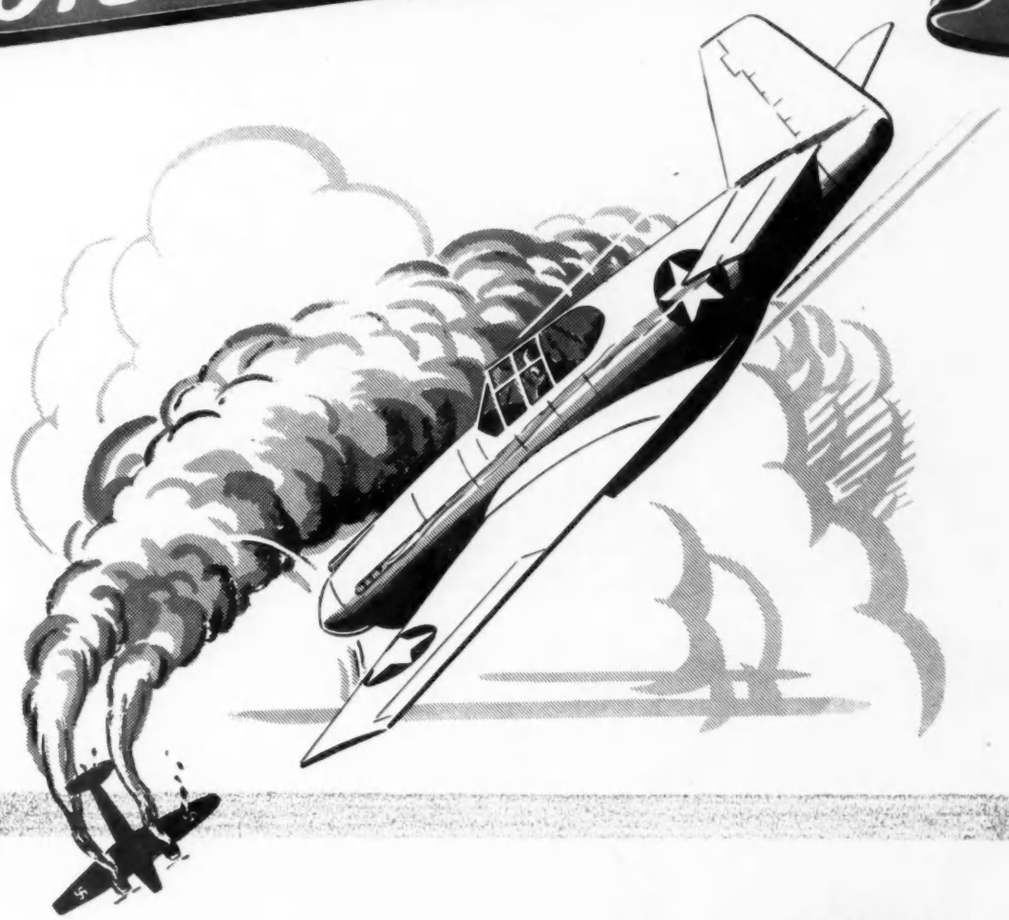
28. Valves and fittings promise to be one of our most serious bottlenecks. Cast iron valves should be substituted for steel valves wherever possible and particularly in the smaller sizes. The elimination of alloys in valve bodies will help the situation materially. The practice of prefabrication and/or the welding of pipe should be carried to the extreme.

29. All present indications point to even a more critical shortage of production materials and equipment next year. It will become increasingly important for all operators to look at their "hole card" on materials and to revise, revamp, substitute, reclaim, consolidate; in fact, do any and all things that will result in present equipment being used as effectively as possible.

Except in rare instances, the layout and location of gathering lines, tank batteries and other lease facilities, follow no broad pattern. Unavoidably, the layout on a given lease or group of leases "mushrooms" or, like Topsy, "jest grows." When a field is flush, lines and tanks must often be larger than is necessary after the wells decline. In normal times, an operator, although recognizing that the setup is over-sized, may be reluctant to go to the expense of rearranging the facilities.

These are far from normal times, however. We are in a war and materials are scarce. It will pay operators, and PAW is urging them, to study every detail of their lease layouts to determine how much equipment can be dispensed with and used elsewhere without impairing operations. Not only look at your own leases, but talk it over with the operators on adjoining leases to see if a pooling arrangement can be worked out. Joint use of facilities is the order of the day and all operators are urged to give the subject close study.

OIL IS AMMUNITION



SUPERIOR AIRPLANES

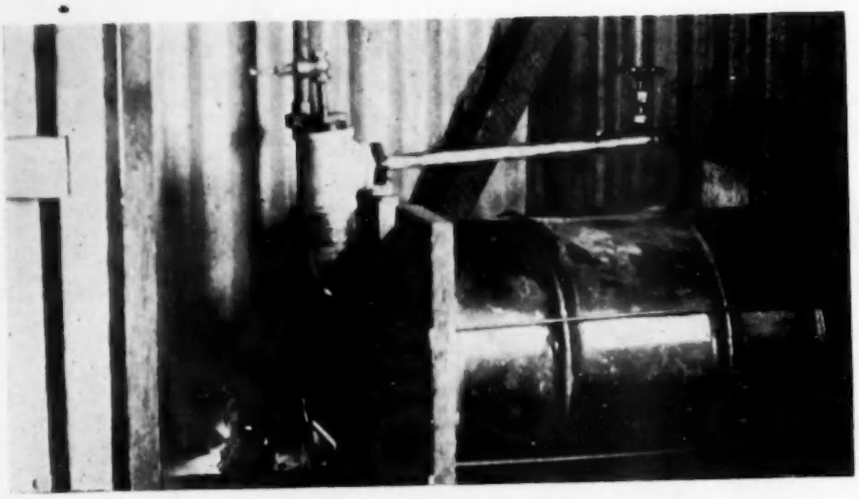
The United Nations are depending heavily on air superiority for victory. Their air forces have superior fighting and bombing planes largely because the American petroleum industry is supplying them with the highest octane gasoline known. This permits them to fly faster, climb higher and more quickly, to be more maneuverable and to carry larger loads than the planes of our enemies.

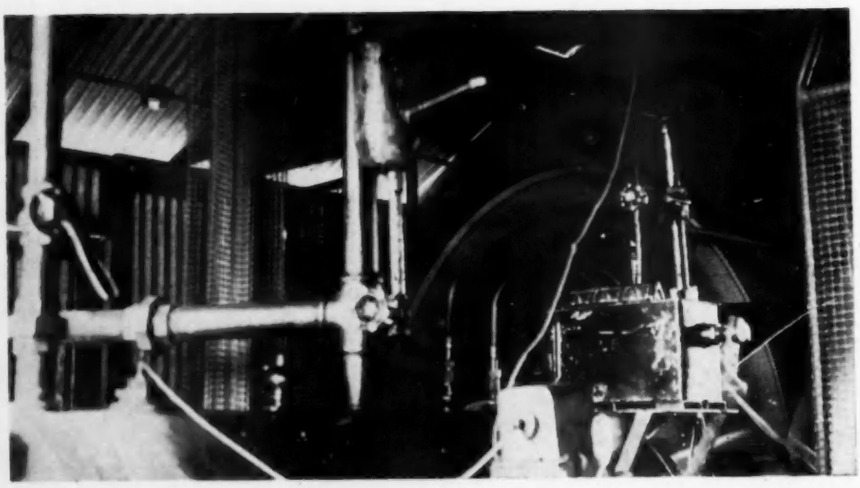
FOOT COMFORT

Athlete's foot is one of the most common complaints of the men in the service. To aid in the cure and prevention of this infection, a remarkably effective medicinal preparation comes from petroleum refineries.

Oceans of Oil Needed
YOUR JOB IS VITAL FOR VICTORY

Efficient Transfer Apparatus Handles Lubricating Oil





Air pressure transfers oil from drum (top) to a similar drum near roof (center) and oil feeds to lubricator (bottom) by gravity.

To simplify the problem of removing gas-engine lubricating oil from a tilted drum and carrying it in a can to the force-feed lubricator, one company has worked out some efficient transfer apparatus which saves both time and material. Equipment required consists of a small amount of small pipe, a few valves and some planking for retainers and drum brackets.

Lubricating oil is shipped to the pumping wells in 15-gallon drums and set in a retainer made by nailing planking together. Piping connects this drum, after it is clamped tightly in the retainer, for gas pressure to lift the oil from this drum to a second of similar capacity mounted on a convenient bracket above the door, or at some other accessible place.

This second drum is equipped with a gauge glass and is provided only with a small vent to allow air to escape, when filling, and seep back into it as the oil is withdrawn. The transfer line from the elevated drum leads directly to the force-feed oiler operated by the engine eccentrics. A strainer is set into this transfer line to insure only clean oil for engine lubrication.

If the lubricator pumps are set properly, the supply of oil in the reserve 15-gallon drum clamped in the retainer is sufficient to last over a long period.

Operations required to fill the force-feed lubricator by the lease pumper are relatively few and simple: After making the pressure and transfer connections on the supply drum, the pumper opens two gate valves, one on the transfer line to the elevated drum, and the other on the gas pressure line. By observing the gauge glass below the roof on the elevated tank, the pumper can quickly determine when sufficient oil has been raised from the supply tank. Shutting off both valves completes this operation. When oil is required for the force-feed lubricator bracketed on the side of the pumping engine, the pumper need concern himself with opening only one valve. This gate is located in the supply line directly above the lubricator reservoir and by watching the line of oil in the gauge glass on the instrument, he can quickly replenish the working supply of oil at this point.

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Manpower Shortage Imperils Industry's Exploratory Work

Severe losses in geological and geophysical personnel hampering search for new oil fields, the most critical function of the industry in view of rising needs of war

By A. R. McTEE, Staff Writer

EXPLORATION for new oil fields, always an important activity for the oil industry, is rapidly becoming the most critical function in the program of supplying petroleum for war requirements. This work is chiefly performed by specialists who have acquired their skills through highly technical training and years of practical experience. Men with such training and experience are useful in various specialized capacities in the armed forces, and many of them have, through a desire to be of the greatest possible service, become Army officers. Many others have been drafted in the armed forces. As a result, the exploration branch of the industry has a shortage of professional personnel which is rapidly assuming serious proportions.

Meanwhile, more than 18 months of war have brought rapidly increased requirements for petroleum products. All evidence points in one direction—that it is necessary to increase the discovery effort of the industry to the greatest extent if it is to fulfill its function of providing adequate supplies of petroleum for the successful prosecution of the war. Therefore, exploratory activities should be at a peak in both volume and efficiency.

Recognition of the essential nature of petroleum exploratory activity to put it on a par with military service seems at last to be a probability. Manpower shortage in geological and geophysical crews threatens to become so critical that William B. Heroy, director of petroleum reserves for PAW has put the matter squarely up to War Manpower Commission in the form of a recommendation asking that the matter be brought to the attention of selective service agencies.

On account of the large number of men of draft age in exploratory work, this function has suffered severe losses of personnel. Such losses reduce, at least proportionately, the level of activity in exploration and also its quality, and consequently imperil attainment of the exploratory program. It is therefore essential to the war program that the professional personnel engaged in the petroleum industry be retained in that work and deferred from military service.

Such is the finding of a survey recently prepared for War Manpower Commission by the director of reserves and presented to the commission on June 15, and now being considered by that agency.

On January 1, 1942, there were approximately 12,000 workers in exploratory pursuits. Although even at that time the industry had lost heavily to the armed forces, the figure is believed to be a normal one for exploration activities. Since that time, staffs have been considerably reduced.

A questionnaire sent out by the American Association of Petroleum Geologists asked for the total personnel employed on January 1, 1942, and on April 1, this year. Data received were as follows:

Date	Professional	Other	Total Employees
January 1, 1942	1,932	3,373	5,305
April 1, 1943	1,821	2,768	4,589
Decrease	111	605	716
Percentage Decrease	5.7%	17%	13.5%

Reports received from the same group of concerns as to the number of additional men required to meet their full exploration programs, including the filling of vacancies, showed 197 professional and 479 other workers, or a total of 676. Thus the shortage in the professional group was about 10 percent, and in the non-professional group, 9 percent.

Since the AAPG questionnaire represented about 60 percent of the exploration work of the industry, it is therefore concluded that total shortage in the professional group was appoximately 330 workers and in the technical, subprofessional and non-professional personnel, about 800 workers.

Inasmuch as the exploration branch of the petroleum industry has seen its most rapid growth within the last 20 years, most of the men engaged in it are relatively young. Returns from the AAPG survey show that 64 percent of the professional group included, are between 18 and 38 years of age. In the non-professional group, the percentage jumped to 84. About 35 percent of those in the professional group are in deferred classes, and about 23 percent in the non-professional group.

Owing to the fact that a large number of these men have been deferred for two six-month periods already, local draft boards find the question of additional deferments a complicated one. Boards are taking the position that employers should during this time, have found and trained replacements and are accordingly reclassifying the men as available for military service. Faced with the difficulty of filling their current quotas already on account of the mass deferment of agricultural workers, draft boards have turned a deaf ear to cliams by employers that it is impossible to obtain, as trainees, men with the requisite professional education. It has also been found that geologists and geophysicists were registered by boards in the areas where they were, purely by chance, working on the days of registration and have long since been removed to other areas. Such men, being unknown locally, are likely to be put into Class 1 more readily than local residents; employers find it difficult to convince the local boards in such cases of the essential character of the work of the registrant. It frequently happens that transfer of the registrant to the board where he is domiciled is refused.

Geologists in the past have been re-

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OIL WEEKLY EDITION

How to make one pound of steel do the work of two ... better ... at less cost to you!

IT HAS ALWAYS been good business economy to make *one* piece of equipment do the work of *two* wherever possible. But in these times such simplification is not only good business... *it is vitally essential to the conservation of war-scarce materials!*

Why then, have *two* kellys—one for regular drilling and the other for pressure drilling—when you can do *both* jobs BETTER with *one* Baash-Ross Hexagonal Kelly?

An all-purpose Hex Kelly uses up just *half* as much critical alloy steel—and costs far less—than a two-kelly set-up. Not only that, but it requires just *one* kelly bushing instead of two ... and saves vital time when blow-outs threaten, because there is no time wasted bringing in and changing over equipment from regular to pressure drilling assemblies. A Hex Kelly is *always* instantly ready for either pressure or regular drilling simply by installing or removing pack-off equipment. You don't have to break out and re-connect the swivel ... no bushings to change over ... no wrestling the old kelly out to the rack and the new one in!

And here's an important point to remember ... the big majority of kellys that become bent are damaged while being hauled or racked—or while being pulled into the rig through the window. So by eliminating the need for changing kellys in the middle of a drilling job, you eliminate a major cause of bent kellys ... another vital conservation feature!

BUT THAT'S ONLY A SMALL PART of the full story on Hex Kelly advantages. Not only is the Hex Kelly an *all-purpose* tool, but it does *either* type of drilling job—regular or pressure—far better than single-purpose kellys. For example, the square kelly has long been considered the standard kelly for regular drilling operations. Yet Hex Kellys surpass the square on *every single performance point* important to modern drilling operations ...

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Once you have tried Hex Kellys, you'll find, as others have, that the longer kelly life, the lower maintennace costs, the greater rigidity provided by this one feature *alone* are sufficient to justify a complete switch to Hex Kellys for *all* your drilling requirements.

▸HEX KELLYS REDUCE STRAIN ON PUMPS! Hex Kellys have 48%* more circulation area than comparable size square kellys. That means your pumps can pu: a *higher* volume of fluid through your string at *lower* working pressures. You not only get *better* circulation, but longer pump life, less pump maintenance as well!

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---

*These figures are based on the widely-used 6" square kelly with the 3½" bore vs. the 6⅝" hexagonal kelly with 4½" bore. Because it is the maximum dimension that governs the selection of a kelly size, the 6⅝" hexagonal (across-corner dimension 7¾") is comparable to—in fact, is actually ⅛" *smaller* in its limiting dimension than the 6" square kelly (across-corner dimension 7⅞"). *In other comparable sizes, Hex Kellys offer proportionate advantages.*

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cruited largely from the following sources:

1. Students leaving college prior to graduation but having had major work in geology.
2. Graduates and post-graduates in geology.
3. Geologists entering petroleum geology from other branches of geology.
4. Geologists engaged primarily in teaching who either take full-time or part-time employment in petroleum geology.

Very few students are entering petroleum geology at this time. Most students have either been inducted into military service or are deferred for training in courses prescribed by military authorities, and these courses do not include petroleum geology. Few women have had professional training in geology because of physical requirements. There has also been a further drain on the supply of professional geologists due to the search for strategic minerals which has been greatly extended within the past two years. Reduction in teaching staffs has released a few geologists but most of these have gone into strategic-mineral investigation, chiefly in the service of the government.

No Recruits

Thus summarizing sources of supply for geologists, it is clear at this time that there is practically no possibility of the petroleum industry being able to recruit geologists to replace those being inducted into the armed forces.

While not so definitely indicated by statistical data, the situation as regards the supply of geophysicists is essentially the same as that described for geologists. There are no sources available from which additional men can be recruited. The demand for men with training in physics is, if anything, greater than for men trained in geology. Up to the present time 97 members of the Society of Exploration Geophysicists are reported as having entered the armed forces and 99 members are said to be engaged in other forms of war work. This constitutes 23 percent of the total membership of the society in the United States. The drain on exploration staffs is apparent, since nearly all of these men were previously engaged in the petroleum industry.

As is well known by all familiar with facts, the amount of oil in the fields discovered over a period of several years recently has not kept pace with production. Requirements for petroleum products for the armed forces are rapidly increasing. Also quantities of petroleum products required for the manufacture of explosives are exceeding all previous expectations. A requirement which was not foreseen but which has become of great importance is the production of butadiene for the manufacture of artificial rubber. The demand for fuel oil and natural gas for war industries has greatly increased. All these requirements, together with those for essential civilian use, add up to totals substantially beyond our anticipated productive capacity based on present producing fields and wells. Production rates that have been set for the first quarter of 1944 are much above present output.

All these various lines of evidence point in one direction—that it is necessary to increase discovery efforts of the oil industry to the greatest possible extent to provide adequate supplies of petroleum for the successful prosecution of the war and for other essential purposes.

Made apprehensive by this situation, early in the year, PAW informed the industry that it should undertake a program of drilling 4500 wildcat wells in 1943, an increase of about 40 percent over the number drilled in 1942. While it is realized that such an increase will not necessarily bring the number of new fields discovered or the volume of reserves to the desired level, because of the fortuitous factors present, yet such a program should lead the industry to exert its maximum effort in oil finding.

The industry also was asked to drill those prospects and locations which, in the opinion of each operator, give the greatest promise of finding new fields. In many instances the companies consider that they do not have available for drilling a sufficient number of promising prospects and that they must carry on extensive geophysical exploration to find new areas that justify wildcat drilling.

An all-time high has already been reached in the number of geophysical crews in the field, with about 330 at work. Companies have been asked, not only to maintain these operations at present levels, but to increase them 20 percent if competent scientists and other workers can be found. It should be remembered that this program of increased exploration is being carried on with decreased personnel both in geological and geophysical work and in drilling wells.

Oil Is Ammunition

Operations of the United States Navy during the fiscal year to begin July 1 are expected to require 76,933,400 barrels of fuel oil, 3½ times its peacetime consumption of about 22,000,000 barrels. In addition, the United States Navy during the next year is expected to use 12,479,000 barrels of diesel oil, 8,580,000 gallons of motor gasoline for small craft, and 9,780,000 gallons of aviation gasoline.

Conclusions

Influenced by all evidence accumulated, the director of reserves closed his report with the following conclusions:

1. The demands for crude petroleum and pertoleum products are rapidly increasing and are scheduled to reach unprecedented highs over the next year and for the duration of the war;
2. Rates of production of presently producing fields cannot possibly be sustained to meet these demands and the discovery and development of a large number of new fields are greatly needed;
3. The number of prospects now available for test drilling is seriously deficient and it is essential that the search for new areas which give promise of production be maintained at the highest possible level;
4. The number of geophysical crews now in the field is at the highest level attained but this effort should be still further increased by 15 percent if the exploratory program is fully met;
5. The geological work of the industry, which is essential to the interpretation of geophysical results and to the finding of non-structural prospects, should also be expanded to a parallel extent;
6. The number of professional workers that are needed to bring these activities up to the program level is about 330;
7. A shortage of about 10 percent now exists in the professional group in petroleum exploration;
8. No additional geologists and geophysicists are being professionally trained to maintain or expand the present working staffs;
9. No program of training men for such work now exists;
10. About 75 percent of the men employed are in the 18-38 age group and, unless deferments are granted, the requirements of the military service will make severe inroads on this group;
11. About 35 percent of the professional group in the age range now subject to military service have already been deferred and these are likely to be reclassified as available for induction at the end of their present deferment because of the increasing pressure on local draft boards;
12. These losses of personnel will, if they become effective, impair the program of petroleum exploration;
13. It is therefore recommended that the War Manpower Commission determine that there is a critical shortage of geologists and geophysicists for petroleum exploration and that this conclusion be brought to the attention of the selective service agencies, to the end that such men should be recognized as engaged in war activities as essential as those of the armed forces.

Two-Year Summary of Geodynamic Prospecting Results

With over 2500 stations made in 70 independent surveys, the number of geodynamic surveys is gradually reaching a point where an appraisal of its resolving power can be ascertained

By SYLVAIN J. PIRSON
Petroleum Geologist, Geophysicist and Engineer, State College, Pennsylvania

TWO years ago, the new concepts and techniques in geochemical prospecting were announced[1] and from time to time, theoretical papers on the subject have been presented.[2-5] It is the purpose of the present article to summarize results obtained with this new technique over the past two years, in order that those who are interested in the survival and maintenance of the oil business according to the past practices of wildcatting and oil production from the earth may make their own appraisal of one of the new ideas which have been submitted as holding a potential solution to the dwindling oil discoveries and reserves.

It is intended that the present paper be as objective as possible and the writer will refrain from drawing personal conclusions, leaving them to be made by the interested readers. To this end, a number of examples of surveys will be given in all available details so that appropriate checking on locations may be made by the readers.

The examples shown are typical of the results obtained. For obvious reasons all the results can not be given in map form in view of the confidential nature of certain surveys as well as their already prohibitively large number. In all, more than 2500 stations have been made over the past two years covering over 70 independent surveys located in 14 different states of the United States and Canada.

At the outset of this review it might be well to consider briefly the principle of the new method which must be differentiated from ordinary *soil-analysis* and even *soil-air-analysis* as geodynamic prospecting purports to measure the undisturbed rate of hydrocarbon gas diffusion through a measured area of the earth surface.

The method is predicated upon the assumption that no rock is altogether impervious and that leakage from a confined source of pressure within the earth will take place though at a very small rate which has been called *micro-leakage*. Various investigators, including the writer, have tested the permeability of shales and other dense rocks and found it to be of the order of 10^{-8} to 10^{-12} Darcy.

A further assumption upon which the method is based is that *ethane* and heavier saturated hydrocarbons are not products of fermentation or bacterial decay of organic matter present in the soil or the subsoil. This assumption is considered by some as very highly controversial and analysis of "marsh gas" are cited to support the opposite assertion. Yet, the conditions upon which the marsh gas was formed and sampled are not given and there is no way of ascertaining that the traces of heavy hydrocarbon gases so observed (if we can rely on the analysis methods used) were not the result of dynamic leakage from a subterraneous source of hydrocarbon pressure. This controversy will not be settled, very likely, until the paramount problem of origin of oil is itself solved.

It is well known, of course, that methane is the main constituent of marsh gas and, therefore, leakage measurements cannot be based on this gas. Accordingly, *ethane*, as the next most diffusible gas of the saturated hydrocarbon series was chosen as the one on which routine testing should be based.

Inasmuch as the above assumptions are debatable (i.e., the existence of a measurable ethane leakage above a subterraneous source of H.C. pressure and the absence of ethane formed by organic decay), and have not, as yet, been proved or disproved experimentally under controlled conditions, the proof of the process must necessarily be statistical in nature.

Furthermore, since conclusive experiments can not be devised to prove or disprove the process, as: (a) testing a known field is not conclusive due to the possible existence of leakage around the casing of the wells; (b) testing an unknown field is not practical since no one knows for certain where a new field will be discovered in the near future, empirical investigations of three different types were resorted to, as follows:

1. Surveys made with a view at forecasting the outcome of wells in the process of drilling or about to be drilled.
2. Surveys of a known field in the early stage of development.
3. Surveys made for prospecting purpose in view of locating an exploratory well.

General Remarks on Leakage Measurements

Before presenting the results of the various types of surveys it is fitting to explain the character and precision of the field tests.

At least two and often three measurements are made at each station. These measurements are made in shallow bore holes from 10 to 20 feet apart and constitute, therefore, altogether independent measurements of a quantity which should substantially be the same at each test hole or station, since, if the leakage is uniform, there should be no substantial leakage variation within such a short distance. Yet, any physical measurement is subject to errors as absolute checks at a station are seldom obtained, but the double or triple readings at each station permit the determination of the precision of the measurements. In the figures reported here below, the precision of the measurements is of the order of $\pm .2$ cubic millimeters of ethane per 24 hours.

The micro-ethane leakage reported is expressed in cubic millimeters over a 24-hour period and through an area of the earth surface standardized at one half square foot. The readings range from .5 to 10 and at times 20 cubic millimeters of ethane per 24 hours.

Readings do not start at zero, as in measurements of this type where the quantities observed are almost vanish-

TABLE 1

Geodynamic Predictions

(This table includes all the wells drilling or about to be drilled on which geodynamic forecasts have been made to date—July, 1943)

County and State	Well and Location	Date of Field Survey	Status of Well at the Time	Date of Geodynamic Report	Prediction Made	Depth of Comp.	Results and Remarks
Benton, Indiana	Palmer Well, nw nw 3-25n-7w	2- 9-42	Approx. 300′	2-15-42	Dry	1087′	Dry.
Jasper, Illinois	Erwin Garner No. 1, 16-6n-8e	2-12-42	Approx. 1600′	2-22-42	Possible Edge Well	2900′	?
Clay, Illinois	Cameron Oil's Landwher 1, nw ne 8-5n-7e	2-13-42	Approx. 2200′	2-19-42	Edge Well	2821′	Edge discovery well, Bible Grove field.
Clay, Illinois	Sinclair-Wyoming Stanley No. 1, nw ne 8-4n-8e	2-13-42	Rigging Up	3- 5-42	Dry	2261′	Dry.
McLean, Illinois	McLaughlin-McGowan No. 1, sw nw 33-24n-5e	2-25-42	Derrick	3- 5-42	Dry		Dry.
Clarke, Illinois	Ohio Oil, nw nw 32-9n-14w	3- 5-42	Location	3-26-42	Dry	Not Drilled	
Clay, Illinois	Company No. 9, sw ne 35-5n-6e	4- 6-42	Drilling below surface pipe	4-20-42	Dry		Dry—Survey found a leakage anomaly ½ mile south later successfully drilled.
Wayne, Illinois	Albright Block, 24-1s-9e	4- 6-42	Location	5-30-42	Dry		Dry.
Wayne, Illinois	Johnsonville Field (Extension)	6- 5-42	Location	9-15-42	Dry	Not Drilled	
Lake, Indiana	Elliott Well, nw ne 30-32n-10w Bonded Oil Co. Well, nw sw 33-32n-9w	7-15-42	Approx. 500′	7-30-42	Possibility Both Edge Wells	1315′ 765′	Dry, see Fig. 3. Dry, see Fig. 3.
Kankakee, Illinois	Ste Anne Pet. Cody well, nw ne 2-29n-13e	7-30-42	Location	9- 9-42	Dry	1100′	Dry, see Fig. 4
Edwards, Illinois	Jablowski-Bristow No. 1, sw nw 30-1n-11e	8-19-42	Location	9- 4-42	Dry	3310′	Dry
Wayne, Illinois	Wayne Co. Producers Taylor No. 1, ne nw 22-13n-1w	8- 4-42	Location	9- -42	Possible Edge Well	3300′	Dry.

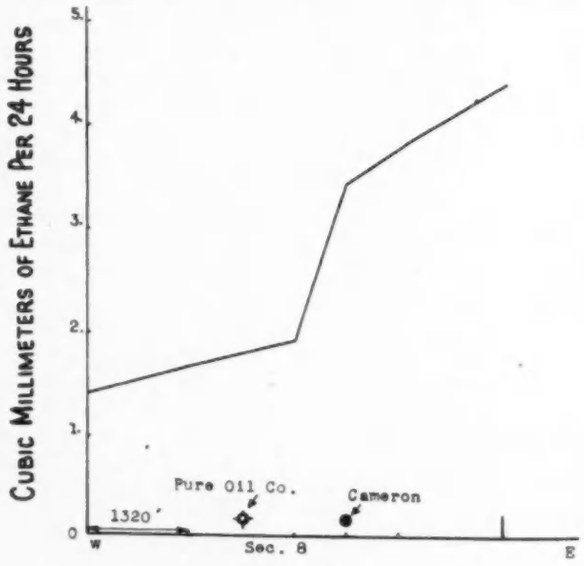

FIGURE 1

ingly small, there is always a *background-count* or *residual value*. In the figures reported, the residual is well known and stands at between .6 and .8. Consequently, any leakage figure in that range or below is not significant and it is only when the readings are of the order of 1.0 cubic millimeter that they become of interest. Therefore, the boundaries of the areas of interest in a survey, which are those enclosed by the 1.0 contour lines, should not be considered as sharp and definite but rather as diffuse regions.

Inasmuch as readings become significant when they are of the order of .2 above the residual, an area can only be suspected of being oil or gas bearing when a leakage anomaly is substantiated by more than one high value and preferably where a group of high readings are bunched together. Such corroboration amongst neighboring readings enhance considerably the reliability of the anomaly.

Experience has shown that in a non-petroliferous area, the leakage figures are equal to the background count plus or minus a quantity within the precision of the measurements. Although the background count is sufficiently constant to permit its subtraction from the readings, it is the practice not to take it out because of the possibility of a number of negative readings which would of course fall within the limits of the precision of measurements.

Thus far, no well has proven productive in an area within a region of negligible leakage.

Forecasting Surveys

Table 1 gives a summary of the forecasting surveys all carried out since the early part of 1942.

No further comments are needed than those shown in Table 1. However, it is of interest to consider with particular attention the predictions history made at Cameron Oil Company's Landwher 1 well in Clay County, Illinois (Figures 1 and 2), discovery well of the Bible Grove pool. The first survey of six stations was made and reported on at the dates indicated with the forecast that the well would probably be "a field edge-well showing both oil and water." Shortly after these predictions the well showed a production of 28 barrels of oil in 18 minutes and some water on a McClosky drill-stem test. The opening of this Clay County pool prompted an extension of the survey by the addition of nine stations resulting in the map shown in Figure 2. This map was completed before most of the wells indicated were drilled-in and, in particular, it condemned the two wells of The Pure Oil Company in the NW quarter of Section 8. The Texas Company well in NW SW NE of Section 8 was also condemned by the extension of the survey though located very close to the limits of expected production; when completed this well was dry in the McClosky but is a fair producer from the Cypress sand.

Hearing of the results achieved at Bible Grove, Company 9 (Table 2) requested a survey of a drilling location SW NE 35-5n-6e, Clay County, Illinois, some six miles to the SW from Bible Grove and presumably on the same structural trend. The well was duly con-

demned by the geodynamic survey and, when drilling into the expected producing horizons, only small shows of oil and gas were encountered and the well was subsequently abandoned. However, the survey had revealed the existence of a pronounced anomaly southwest of the well and the operators took upon themselves to drill the location SW SW SE Section 35, with the result that the Barbee 1 well opened the Tolifer pool.

Survey of a Known Field

Surveys of known fields designed to check a geophysical method are always held with suspicion because of charlatanism often associated with such procedure and possible falsification of data. In the case reported here, the survey of the new St. Jacobs field near East St. Louis, Illinois (Figure 5), the laboratory tests and interpretation of the data were carried without any knowledge of the location and; therefore, may be considered as a blind survey. The close correspondence between the known extent of the field and the geodynamic data is remarkable, to say the least, though certain discrepancies are to be noted in Section 27. It is possible that, if a more extended aerial distribution of stations had been used, a reason for this discrepancy would have been discovered. Further areas of interest are shown in the Township of the St. Jacobs pool, in Sections 8 and 2, also in the SW of the township. The reader is warned that these anomalies are not sufficiently reliable to warrant immediate leasing nor drilling. Though they are indications of possible interest, none is justified by a sufficient number of measuring stations.

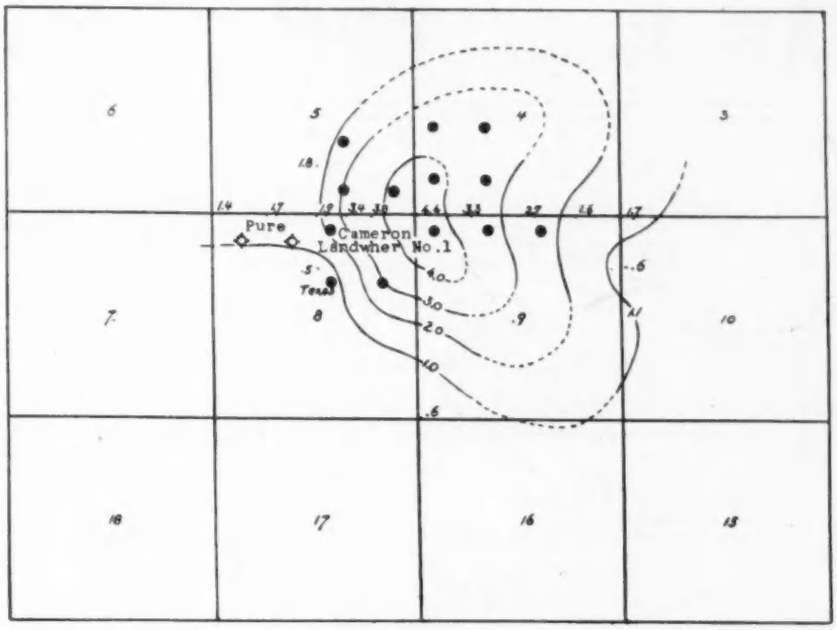

FIGURE 2

TABLE 2
Geodynamic Exploratory Wells

(This table includes all the exploratory wells drilled to date (July, 1943) as a result or after a geodynamic survey was made)

	LOCATION OF WELLS	QUALITY OF LOCATION	No. of High Points	Date Completed	RESULTS	Classification	Remarks
Group I Recommended Location	Co. No. 1 Warrant 5247, Tidicute, Pa.	Good	5	Aug., 1941	Dry in Queen SS	Failure	Some shows of oil found in the 2d Warren SS. Also some shallow gas found.
	Co. No. 2 Porter Cy., Ind. sw ne 1-33n-7w	Good	1	June, 1942	Dry in Trenton Ls 1087'	Failure	Considerable shallow gas found in the Devonian which might have been responsible for the leakage anomaly.
	Co. No. 3 Bartholomew Cy., Ind. 7-8n-5e	Good	6	Apr., 1943	Gas at 450'—150 psd. (ungauged) Dry at 1200'	Success	Well drilled to Trenton Ls. at 1200', dry. Small commercial gas well.
	Co. No. 4 Wayne Cy., Inc. se ne 34-13n-1w	Fair	2	May, 1943	Dry	Failure	Second choice location drilled. Lease situation did not permit the drilling of first choice location.
	Co. No. 5 Anderson Cy., Ks. se ne 27-19s-20e	Fair	2	June, 1943	Dry	Failure	Shallow shoestring area. It was later recognized that leakage observed was not sufficiently intense to warrant drilling.
Group II Location Made by Companies Themselves	Co. No. 6 Warrant 3436, Bradford, Pa. Well X41	Good	2	May, 1941	Production found in Sliverville ss.	Success	
	Well X42	Poor	0	July, 1941	Dry		Wells X42 and W10 should never have been drilled as leakage map condemned them beforehand.
	Well W10	Poor	1	Dec., 1941	Dry		
	Co. No. 7 Warrant 3408—Well No. 1	Good	4	1941	Saturation found	Failure	9900 bbls./acre found in Bradford 2d sand but of too low permeability to produce.
	Well No. 2	Good	2	1941	Sliverville Production	Success	
	Well No. 3	Good	2	1941	Dry	Failure	
	Warrant 3436—Well No. 1	Good	2	1941	Sliverville Production	Success	2,000,000 ft. of gas and 2 bbls of oil per day.
	Co. No. 8 Sandia, Texas	Unknown	?	1942	Dry	Failure	Unofficially reported that oil stood 600' in well when abandoned for low permeability.
	Perry Co. Illinois, nw sw 30-53-1w	Good	3	1942	Dry—in McClosky at 1610'	Failure	Reported location of well with respect to the anomaly high conflicting. Possibility of deeper production.
	Co. No. 9 Clay Cy., Illinois, Barbee No. 1 sw sw se 35-5n-6e	Good	3	1942	Production in McClosky at 2887'	Success	Discovery well of Tolifer Pool of Clay Cy., Ill. Initial production 270 bbls./day.
	Co. No. 10 Ohio	Unknown	?	1942	Dry	Failure	Conditions unknown. Blind survey.
	Co. No. 11 St. Clair Cy., Ill. ne nw 33-1n-8w	Poor	5	1943	Dry at 2100' through the Trenton	Failure	Reported well location is outside of the area of high leakage.

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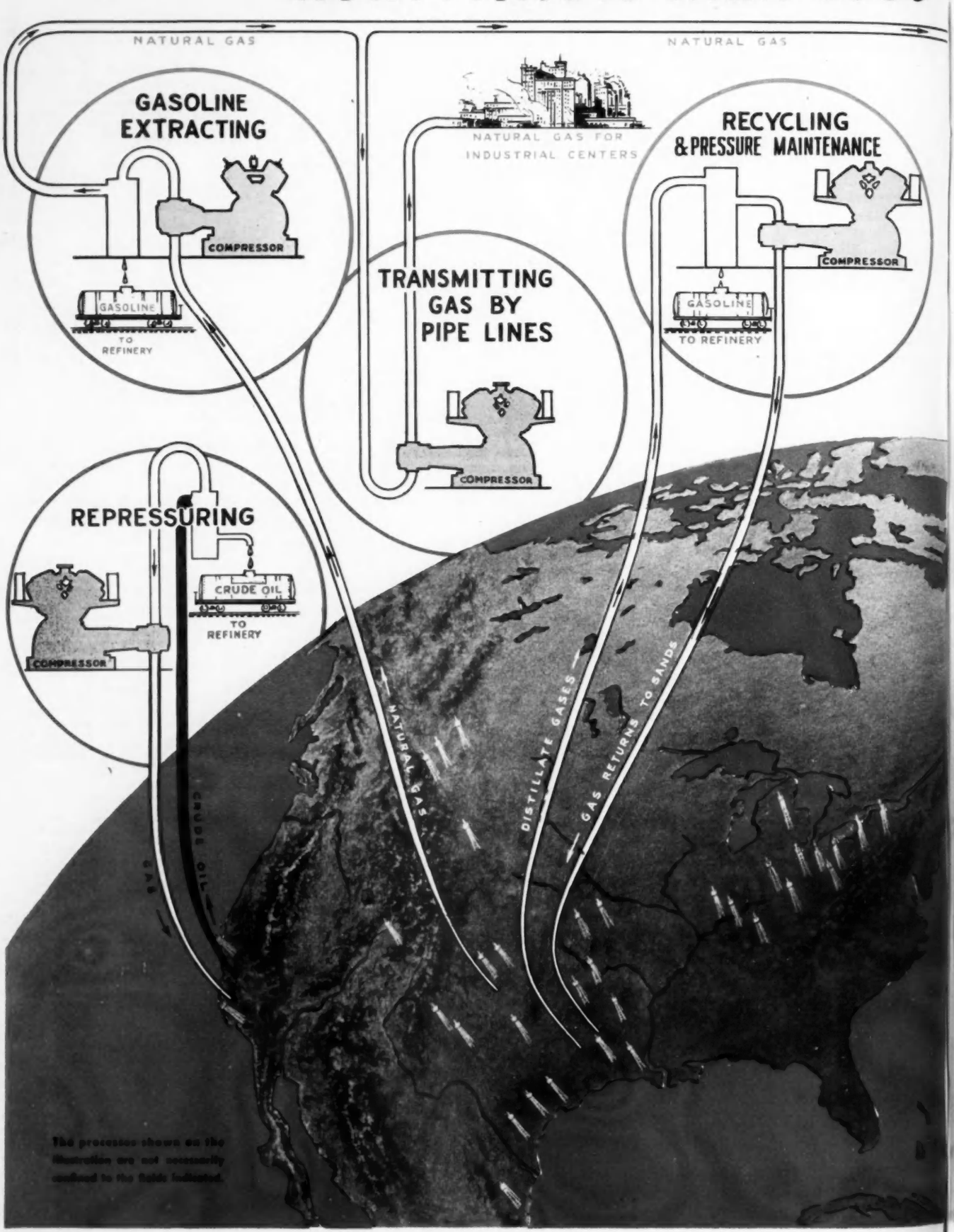

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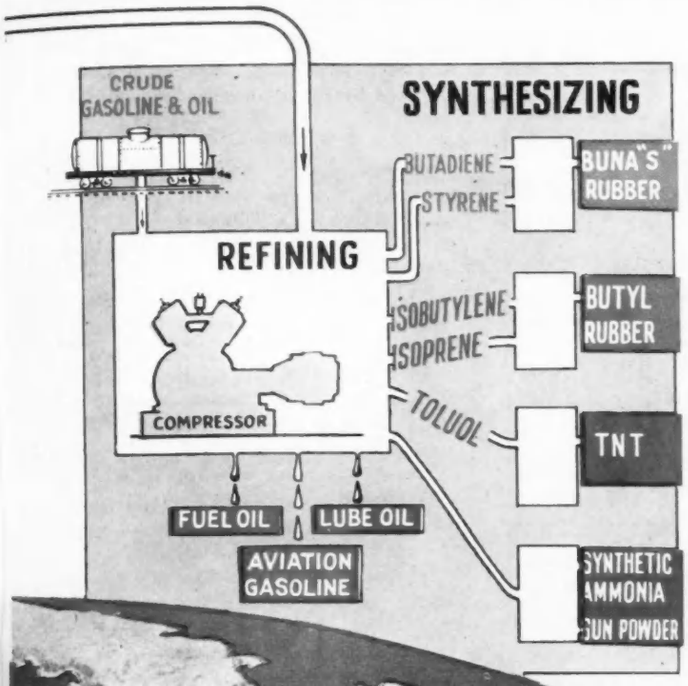

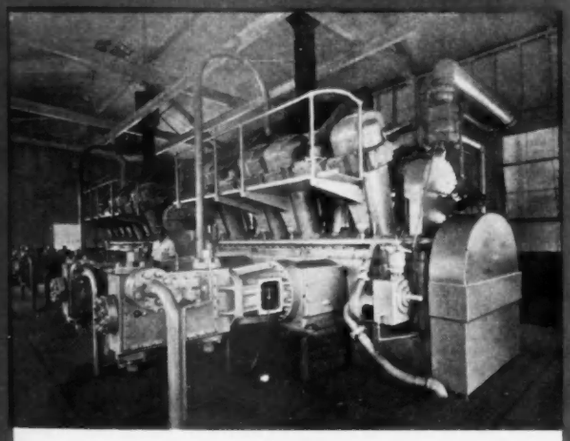

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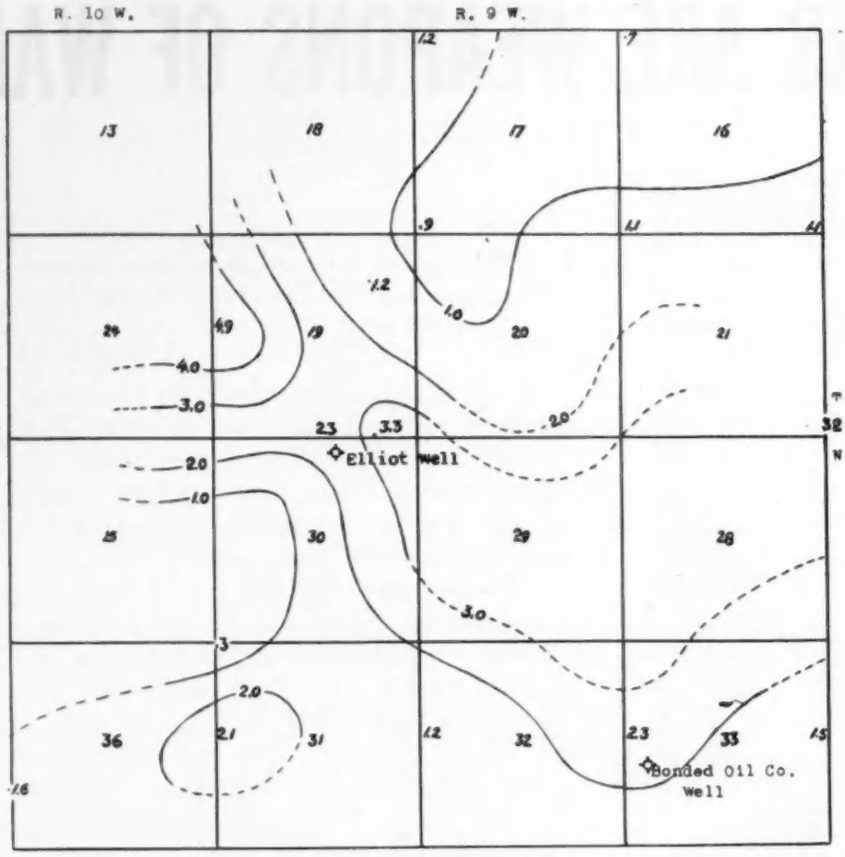

FIGURE 3

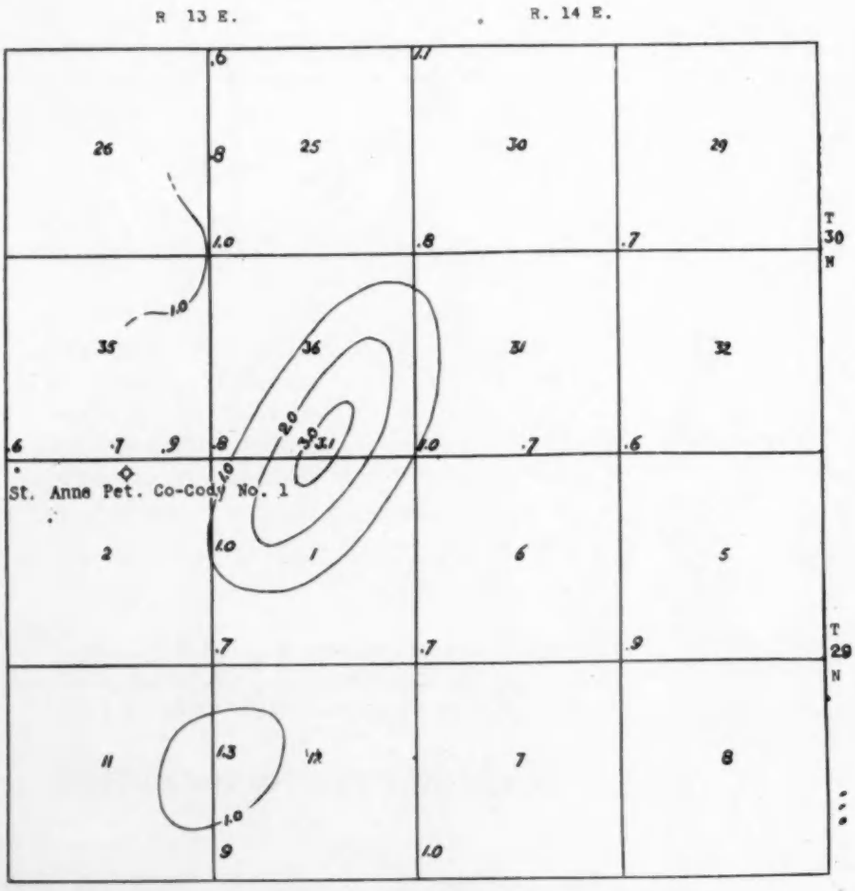

FIGURE 4

To the contrary, the anomaly observed in Section 16 was based on measurements showing moderately high leakage intensity and in sufficient number to recommend drilling. Therefore it appears that the field, as well as its southern extension, could have been discovered by the method under review.

Exploratory Surveys

A summary of the Geodynamic Exploratory Surveys thus far carried out and tested by the drill is given in Table 2. The surveys may be grouped in two classes:

1. Well locations made by the writer.
2. Well locations made by the interested companies.

In the case of Company 1, the well was apparently located properly on a good anomaly. As shown in Table 2 some oil was encountered and also some shallow gas under pressure. In the case of Company 2, the well should never have been recommended nor drilled on the strength of the survey at hand as the anomaly was only justified by one single anomalous high leakage station. Yet, it is probable that a reliable anomaly was present since considerable shallow gas and some oil shows were encountered.

The wells classified in Group II in Table 2 are accompanied by sufficient explanation to be self-explanatory.

In judging the worth of an exploratory method, one must necessarily decide which wildcat should be classed as a failure and which one as a success. A basis of understanding must be found on this important issue as the objection has been raised that the writer considered a wildcat as successful, the one which discovered shows of oil as well as commercial oil. In the writer's opinion, it seems reasonable to consider that *a well is a success when it discovers oil or gas in quantities producible commercially in the region where located.* On this basis the batting average of successes in Geodynamic exploratory drilling is 5/15 as deduced from Table 2.

Perhaps a word of caution should be given the reader of this paper when he makes his own evaluation of Tables 1 and 2.

Table 1 is concerned mostly with predictions made around drilling wildcat wells which, to anyone not versed in the reasons why such wells were located and drilled where they are, could be classified as random locations, therefore, having "a priori" and on the average about one chance in twenty to produce. Therefore, in condemning all the wells, anyone might have had a high degree of success; in the case of Table 1, he would have made a batting average of 12 out of 13. It is in the picking-out of the producers that the merit of a method is measured, not in condemning wildcat

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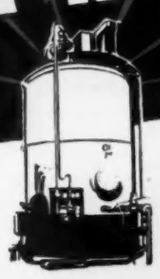

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wells which will subsequently turn out as dry holes. The failure to predict a pool-opener would indeed be a bad blow in the evaluation of the resolving power of a new discovery tool. Of the 13 predictions made in Table 1 only one wildcat opened a new field and it is indeed gratifying to find that the method under review did not fail.

The discovering of an oil field may be likened to battery of artillery shooting at a target. The only thing we know for sure in prospecting for oil is that we must aim our gun, the drill, downward into the earth.

In this process we have two alternatives, either we can shoot at random hoping to hit an invisible and unlocated target, (resort to rank wildcat drilling without any or little systematic reason), or we can shoot with more or less good reasons in a given direction and toward a given location such as a result of hearing noises (rumors of oil strike), scientific location of the target such as through sound ranging, flash-spotting, radio locating devices, etc. (geological, geophysical or geochemical exploration).

Certain geological theories on oil accumulation, formation and migration, as well as certain scientific locating tools (geological, geophysical or geochemical) may be more or less successful in locating oil fields, but all methods, theories and tools must have as their primary objective to successively restrict the probable location of our *target area* as well as its *depth* and *emplacement*. The quality of a prospecting tool will obviously be judged by its ability to confirm the target area to its proper limits.

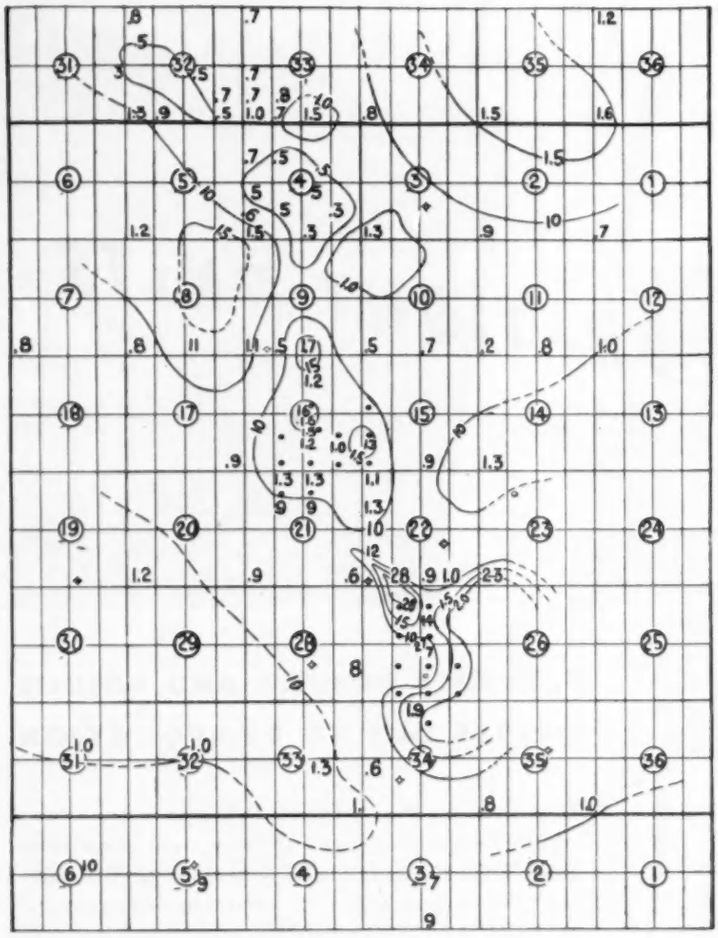

FIGURE 5

The basic theories responsible for the successive restriction of favorable areas emanate primarily from our theories of oil and gas formation, migration and accumulation. The nature of a theory, according to Shapley, is "that no one fully believes in it except its author," and there we have in a few words the reason why we have so many theories on the genesis oil and gas fields since none has thus far received the acid test of a controlled experimental proof. To date, our theories of oil and gas pools genesis have no better proofs than those based on *circumstantial evidence*, which is forcibly of a statistical nature.

Accordingly, a theory, in its status of non-deductive proof, can only enjoy a certain degree of likeliness which, in prospecting for oil, is measured by the probability of success of exploratory ventures solely based on said theory. Past experience in oil exploration was based mainly on the structural control theory of oil migration and accumulation. Both geological and geophysical tools depended for their interpretation on the structural theory and the ratio of the number of successes to the total number of wildcat wells drilled as a result thereof gives a measure of its value. Inasmuch as the value so obtained leaves much to be desired we can conclude that the structural theory of oil accumulation is only part of the truth, it left out what may be described as the *paleogeographical* and *paleolithological* control theories. These terms may perhaps be more easily recognized under the names of *stratigraphic* and *diagenetic* trap theories. Few wells have thus far been drilled as a result of the application of these last named theories and it is too early to attempt to establish their worth.

These theories are so new that the needed tools have not as yet been fully developed. More sedimentation studies will undoubtedly be required, but also some reinforcement in the interpretation of geophysical results, particularly in seismic and electrical work. Of more interest in the task of successively restricting the fovarable areas based on the new geological theories, are the geochemical prospecting tools amongst which geodynamic surveys bid well for an important place.

Resumé

In the matter of prospecting in general, the worth of a method or its *resolving power* can not be determined "a priori" and the proof of a method is forcibly of a statistical nature. Unless the number of exploratory wells located by a new method is large a safe appraisal of its resolving power can not be given. Gradually, the number of geodynamic surveys which are being drilled is reaching a value where a safe coefficient for its resolving power may be ascertained.

The writer wishes to acknowledge gratefully the cooperation of Ansel A. Doublas and his staff of Geodynamic Prospecting Service, Indianapolis, Indiana, for the collection, checking and release of most of the data included in this analysis.

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Design of Tapered Sucker-Rod Strings

A simplified method of determining proportions between sucker rod sizes in tapered strings based on a rational method

By E. N. KEMLER
Professor of Mechanical Engineering, Purdue University

THE need for conserving alloy steels makes it desirable to give careful attention to sucker-rod string design. The determination of proper proportions in sucker-rod strings is partly a case of analysis and partly a case of checking performance in the field. Unfortunately, it is not easy to determine proper proportions of sucker-rod strings in all cases from field records, the reason for this being that a failure in the upper part of the string results in dropping of the entire string. This might cause overstressing of the upper end of the smaller rods. Such overstressing might then result in a large number of failures in the smaller rods. An interpretation of the failure record would under these conditions indicate that there are an insufficient number of larger rods.

The formulas based on acceleration loads which is derived in the appendix of this article can be reduced to the simple form as given in Table 1. In this table the percentages of the various sizes of rods in tapered strings are listed. By using the formulas in the appendix the proportions of other tapered string sizes can be determined.

Figure 1 shows a plot of well loads and stresses against depth for maximum conditions for a ⅞-¾-inch-rod string. This is based on an acceleration factor of 1.2 and a maximum load of 15,000 pounds. The maximum stress is seen to be 25,000 pounds per square inch at the

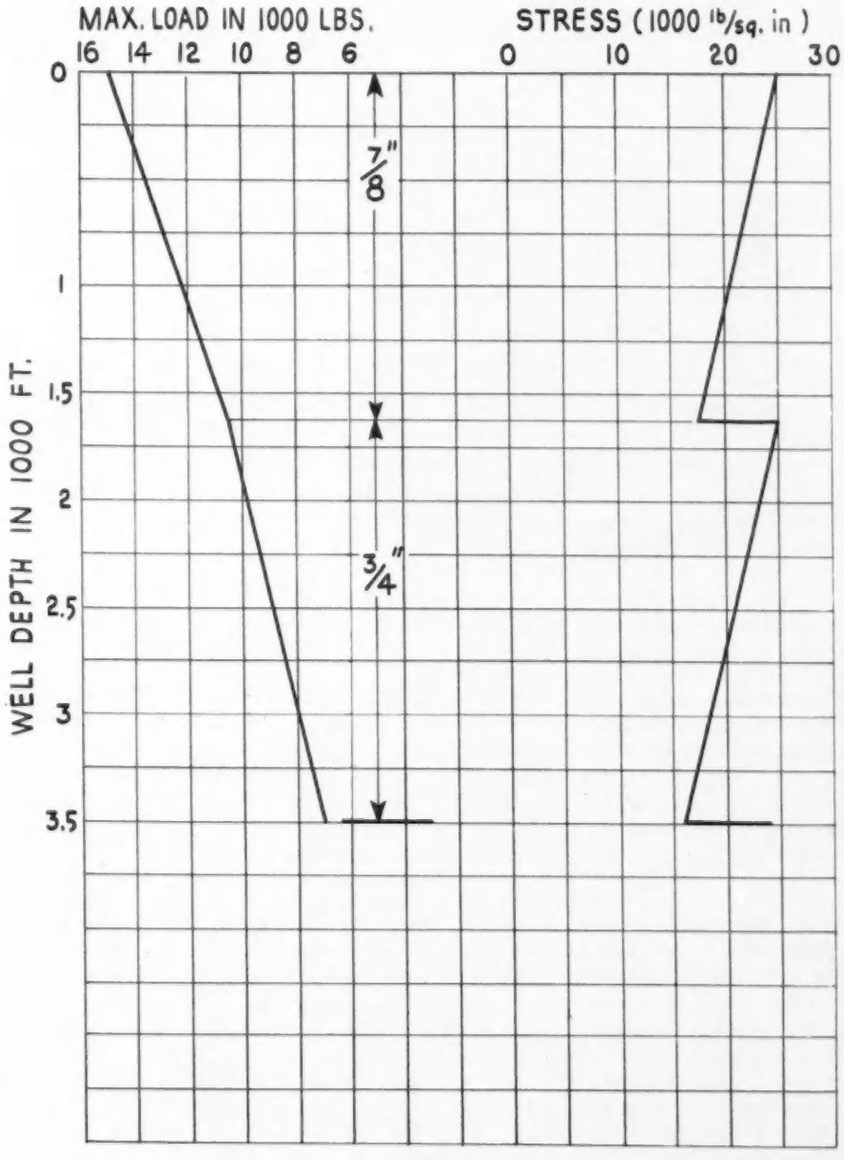

FIGURE 1

top of both the ⅞- and ¾-inch rods. The heavy line at the bottom indicates the stress in a ⅝-inch pony or pump rod.

The formulas derived and the proportions determined therefrom are independent of the well load. The size of the upper or largest rod must be determined from the conditions which determine the allowable working stress. For example, if the maximum well load is 15,000 pounds and a ⅞-¾-⅝-inch string is used the proportions as given in Table 1 will be 28 percent of ⅞-inch, 33 percent of ¾-inch and 39 percent of ⅝-inch rods. The weight of such a string can be calculated using the physical properties listed in Table 2. The average weight per foot based on the proportions of various sizes as given in Table 1 will be 1.62 pounds per foot. This and the average weight of other strings are also listed in Table 1.

Derivation of Formulas

A tapered string of sucker rods is normally selected to give equal stresses at the top of each section of a rod. The equations, as normally set up, will not give the ratios between all sizes. The final size, normally being determined in part by the fluid load or plunger size. The following discussion shows that by making a simple modification the proportions can be found without involving the fluid load. This is accomplished by writing a fourth equation for a rod size which is not there. This rod size has been taken as being the next smaller size and could be the pump rod. It will be noted that a ½-inch size has been shown in Table 2 for this purpose. In the equations to be written for a three-way string the following symbols will be used.

P = Polished rod load
Wo = Weight of oil on plunger
Wr = Weight of rods
L = Length of stroke
N = Strokes per minute
l = Length of rod string
l_1 = Length of larger rods
A_1 = Area of larger rods
W_1 = Weight per foot of larger rods
S_1 = Stress in top of larger rods
l_2 = Length of intermediate rods
A_2 = Area of intermediate rods
W_2 = Weight per foot of intermediate rods
S_2 = Stress in intermediate rods
A_4 = Area of imaginary rod at bottom
S_4 = Stress in imaginary rod at bottom

The maximum load P as given by the proposed A.P.I. formula (see standards 11-E-1) is

$$P = (Wo + Wr)\left(1 + \frac{NL}{5400}\right)$$

The maximum load P as based on simple harmonic motion would be

$$P = (Wo + Wr)\left(1 + \frac{LN^2}{70{,}500}\right)$$

In either case this formula can be written in the form

$$P = (Wo + Wr)\,F$$

Where F would be the acceleration factor.

Using this later form of the equation for P we can write the following formulas for the stress in the top of each section

$$S_1 = \frac{P}{A_1} = \frac{(Wo + Wr)\,F}{A_1}$$

$$S_2 = \frac{[(Wo + Wr) - W_1l_1]\,F}{A_2}$$

$$S_3 = \frac{[(Wo + Wr) - W_1l_1 - W_2l_2]\,F}{A_3}$$

$$S_4 = \frac{[(Wo + Wr) - W_1l_1 - W_2l_2 - W_3l_3]\,F}{A_4}$$

It will be noted that the final equation for the stress in the rod size that is not there is necessary since l_3 does not appear in any of the above equations. Also, F is a common factor in each of the above equations. If the stress in the top of each rod string is to be made equal the above equations for S can be equated and F can be cancelled out giving

$$\frac{(Wo + Wr)}{A_1} = \frac{(Wo + Wr) - W_1l_1}{A_2} =$$

$$\frac{(Wo + Wr) - W_1l_1 - W_2l_2}{A_3} =$$

$$\frac{(Wo + Wr) - W_1l_1 - W_2l_2 - W_3l_3}{A_4}$$

From these equations the following relations between l_1, l_2, and l_3 can be obtained.

$$l_1 = \frac{W_2}{W_1}\left(\frac{A_1 - A_2}{A_2 - A_3}\right)l_2 = \frac{W_3}{W_1}\left(\frac{A_1 - A_3}{A_3 - A_4}\right)l_3$$

$$l_2 = \frac{W_3}{W_2}\left(\frac{A_2 - A_3}{A_3 - A_4}\right)l_3$$

Since $l_1 + l_2 + l_3 = l$

We have on substituting the values of l_1 and l_2 expressed in terms of l_3.

$$\frac{W_3}{W_1}\left(\frac{A_1 - A_2}{A_3 - A_4}\right)l_3 + \frac{W_3}{W_2}\left(\frac{A_2 - A_3}{A_3 - A_4}\right)l_3 + l_3 = l$$

$$l_3 = \frac{1}{\left[\frac{W_3}{W_1}\left(\frac{A_1 - A_2}{A_3 - A_4}\right) + \frac{W_3}{W_2}\left(\frac{A_2 - A_3}{A_3 - A_4}\right) + 1\right]}$$

When l_3 is known l_1 and l_2 as percentages of 1 can readily be found. As an example considering a 1-inch-⅞-inch-¾-inch string we have, using the values given in Table 1 that

$$l_3 = \frac{1}{\left[\frac{1.64}{2.62}\left(\frac{.785 - .601}{.442 - .307}\right) + \frac{1.64}{2.26}\left(\frac{.601 - .442}{.442 - .307}\right) + 1\right]} = \frac{1}{2.7}\quad l = .371$$

$l_1 = .853\ l_3 = .315\,l$
$l_2 = .885\ l_3 = .315\,l$

For a 1-inch tapered string the rods should be divided in the proportions

$l_1 = .315\,l$
$l_2 = .315\,l$

and $l_3 = .37\,l$ to give equal stresses in the top of the various sections. The stress itself must be calculated from the equations given above for S_1, S_2, and S_3. These values are modified to some extent by the value of A_4. If A_4 is taken larger than the next smaller size of rod l_3 will be decreased and if taken smaller it will be increased. The above values, however, should not be far off from an average safe value.

In case it is desired to determine the proportions of a two sized string the relation between l_1 and l_2 can be used which would give

$$l_2 = \frac{1}{\left[\frac{W_2}{W_1}\left(\frac{A_1 - A_2}{A_2 - A_3}\right) + 1\right]}$$

Table 2 lists the proportions for the various combinations of sucker-rod strings based on the above equations.

TABLE 1

String	Percent of Length of Each Size of Rod				Average Wt./Ft. of String
	1"	⅞"	¾"	⅝"	
1"—⅞"—¾"	32	32	36	..	2.15
⅞"—¾"—⅝"	..	28	33	39	1.62
1"—⅞"	47.0	53.0	..	..	2.43
⅞"—¾"	..	46	64	..	1.93
¾"—⅝"	..	..	46.0	54	1.38

TABLE 2

Rod Size	Area (A)	Weight Per Ft. (W)
1"	.785	2.62
⅞"	.601	2.26
¾"	.442	1.64
⅝"	.307	1.15
½"	.196	

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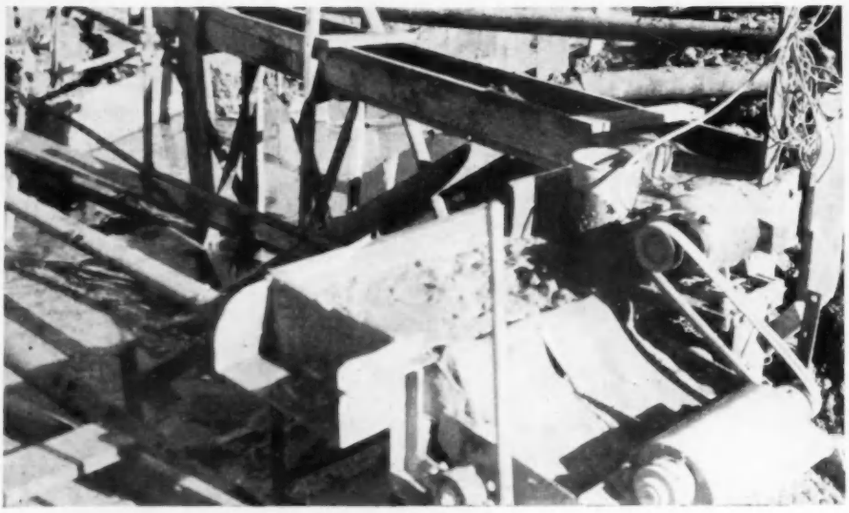
★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

PRACTICAL OPERATING *Hints* FOR THE DRILLING RIG

$5.00 will be paid for each illustrated acceptable contribution. Mail to The Editor, THE OIL WEEKLY, *Houston.*

1. MUD CONTROL

Shaker Spray Loss Prevented by Flaps



The change in direction of mud flow often sets up spray which, if unchecked, may result in excessive loss. Canvas flaps at edge of flume spread mud flow and curb spraying tendency.

WHEN the volume or velocity of the mud is such that it splashes badly as it flows from the flume onto the inclined tables of the shale shaker, it may be confined and the separation of mud and cuttings aided by fitting flaps of canvas to a bar just above the flume weirs. These flaps are made long enough to extend half way down the screen, and wide enough to cover the entire screen surface with a pair of the strips.

Flow of the mud is confined by the flaps, and the speed of the cuttings down the screen retarded somewhat over the rate of motion on an open mesh. This retardation, effecting better separation of the mud from the cuttings, cannot clog the screen, as weight of incoming mud behind a dam of material quickly frees it, an action aided by the motion of the screen beneath the canvas strips.

In locations exposed to high winds, the mud saving effected by the use of the flaps is considerable, and the service obtained from nearby accessories stepped up by the stoppage of the spray of abrasive-laden fluid.

The flaps are made of doubled canvas, with the material stitched across just below the fold, so as to form a close fit on the half-inch rods used to support the upper end clear of the incoming mud flow and permit ready removal or changing if mud hardens and destroys spreading effect.

2. SETTING UP

Preformed Anchor For Guy Line Loops

CASTING two loops of heavy steel rod in the foundation close to the edge of the pier on which the derrick is set provides an effective hitch for guy lines, service equipment or the dead end of the derrick line during actual drilling of the well.

When used for dead-end hitch, a section of heavy pipe which can be slipped through the eyes provides a surface on which the line may be made fast without concentrated stress. In the view shown, this pipe serves as hitch for loops of a line which in turn pass through the eye of the snatch block serving as dead-end fastening for the derrick line through the use of the customary clamps. Passing the drilling line itself around the pipe, even if of 6-inch diameter, would result in formation of a cramped section which, if later run over the sheaves of the hoisting system, could prove a source of trouble.

To prevent the possibility of vibration eventually causing the tie-down pipe to work free of the steel loops, it is possible to set a short bolt in each of the holes through the pipe so that travel will be arrested after the bolt contacts the loop.

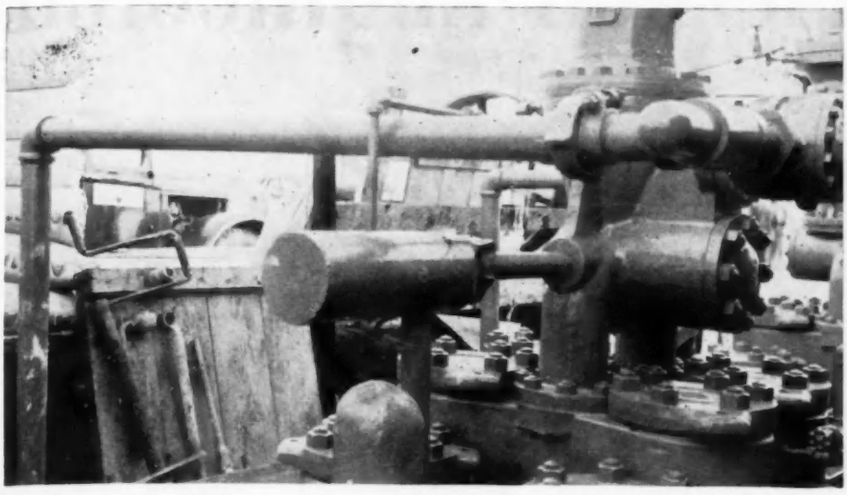
A short pipe section, passed through loops at foundation base, affords easy stringing of tie-down lines.

3. SAFETY

Relief Valve Guards Crew

VALVES which operate when accumulated pressure acts to shear a retaining member require a certain amount of clear space at the outer end of the mechanism at the time release is attained, the motion of this outer end being extremely rapid, and apt to cause injury to personnel if within scope of the valve member travel during release.

One contractor guards against this type of accident by fitting a pipe cover,



The end of a shear-relief valve moves rapidly through a short distance when functioning to release pressure overload. Possible injury through pin impact is eliminated by housing over unit.

the outer end closed, across the release valve. This cover affords working clearances to the valve plunger, yet may readily be removed when it is necessary to get at the device, as for instance when replacing a shear member.

The cover, fitting loosely over the valve, is held so that it is not contacted by the release during its cycle of operation. A pin, of light rod, serves to prevent the cover from being worked loose or shaken free by vibration of the device during operation of the mud system.

4. PIPE HANDLING

Welded Rack Aligns And Controls Stands

CLEAR hardwood 4x4's, cut to length and tied together with 1-inch bolts, form a pipe racking pad which absorbs the wear usually sustained by portions of the derrick flooring. This pad or buffer block is improved by one contractor who, in addition to holding the timbers together with bolts, places around the back and side farther from the driller's stand a low railing made by welding together parallel sections of 4-inch pipe, spaced with short spools of the same material.

These side rails form a guard to prevent the pipe being forced off the pad during the racking of subsequent stands, and, being bolted to the timbers, serve to stiffen and strengthen it to prevent damage or failure if set on an uneven floor.

Pads and pipe rails are handled as a unit on the derrick floor and during moves, the clearance between pipes offering a space through which winch line or sling may be passed to insure a secure hitch on the unit.

By spacing bolt holes for attaching the pipe rail to the wooden member according to pattern, the pad or stand may be loosened and turned over to present a new, smooth surface after the first used becomes unserviceable through marring or splintering by the drill pipe pins.

A right-angled frame of old pipe, adequately braced and pinned to derrick floor, automatically aligns and confines the pin ends of stands as racked, aiding derrickman in spotting upper ends.

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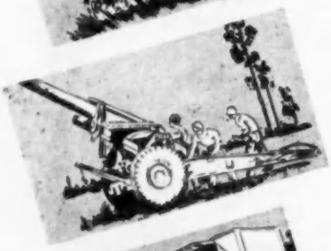

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Expect to Equalize Gasoline Rationing by September 1

Lid Taken Off of Crude Runs To District 3 Refineries

Elk Hills Contract Has Not Been Formally Cancelled

By B. F. LINZ
Washington Correspondent

☆ ☆ ☆ ☆

PROMISES of an early increase in gasoline supplies for the East were the outstanding oil development of the week. Basing their remarks on the opening of the eastern leg of the Big-Inch pipe line, both PAW Ickes and OPA Brown gave assurances that rations would be upped at an early date. However, shipping of larger supplies to the East was seen as indicating reduced rations were in store for the Middle West and perhaps all of the United States lying east of the Rocky Mountains.

Ickes said the enlarged deliveries to the East would still permit the necessary build-up of heating oil stocks for next winter and disclosed a further slight gain in all East Coast stocks to 35.2 percent of normal, despite the fact that tank car loadings during the week ended July 24 fell to 957,938 barrels daily from 994,236 barrels in the preceding week. The drop was due to the withdrawal of cars from the Norris City run to the southwest for loading as the Big-Inch began to move oil.

While the Eastern supply situation appeared to be clearing up somewhat, the question of crude prices still was hung up, with Stabilization Director Fred M. Vinson declaring he could reach no conclusion until he received information from OPA which had not yet been submitted. Meanwhile, Ickes said that the OPA head had not yet replied to his last letter urging the raising of the ceiling.

Ickes disclosed, however, that better cooperation was being received from the Army regarding military requirements of oil, although he refused to say how detailed was the information now being released to PAW. The oil agency and the PIWC have consistently complained that refusal of the Army to give detailed information regarding its future needs has made forecasting and the development of adequate supplies unnecessarily difficult.

The next major move of PAW will be along the lines of developing transportation for West Texas oil, the largest source of developed production in the country that as yet has not been called upon for greatly increased production.

A number of proposals have been made for the movement of West Texas oil, including a pipe line to California where a shortage is foreseen when the United Nations have cleaned up Europe and prepare to launch an all-out drive against Japan, but it is more probable that the oil will be piped northeastward to provide a source of supply for District 2 refineries which no longer can find enough local production to operate at capacity. In this connection, approval has already been given for the construction of a 16-inch carrier from Slaughter field to Drumright, Oklahoma. Present plans call for the installation of but one pump station, which will give the system a capacity of 54,000 barrels daily, and it is probable that additional stations might be installed on this line to boost its capacity. Application for construction of a new pipe line from Midland to Corsicana is under consideration.

District 3 Refiners Told They May Process All the Oil They Can Secure

Practically taking the lid off of refinery operations in District 3, PAW on July 27 told southwestern refiners that during August they could process all the crude they could secure from West Texas, New Mexico or Southwest Texas fields in addition to their regular allocations, but on July 29 removed all restrictions on operations in order that refiners not affected by the severe hurricane of the preceding day could make up for the loss of output in those which had to be closed down because of storm damage.

In its formal order crude run allowables for oil obtained from the usual sources *remained* at the July level of 1,410,000 barrels, and the quotas of the individual refineries were maintained at the July figures with the exception of Pure Oil at Nederland which was given an increase from 44,005 to 46,500 barrels daily, and Humble at Baytown, increased from 163,662 to 173,650 barrels daily.

However, on July 29 PAW sent a telegram to all refiners in the district informing them that while instructions regarding various essential products given on July 27 would still apply they were to make every effort to increase their production to the maximum.

Under that telegram, while originally it was contemplated that the refiners in the district would be permitted to secure additional oil from West Texas and New Mexico and those in the Corpus Christi area also would be allowed to get oil from the Southwest Texas fields, refiners were permitted to use any oil they could get from any source.

"Incomplete reports of yesterday's storm indicate the necessity for every Gulf Coast plant able to operate to increase its crude runs to the maximum rate physically possible under present conditions," the telegram declared. "This to provide products as replacements for those not produced due to shut downs. Therefore, you are directed to immediately or as soon as possible increase your throughput at your refinery regardless of any previous directions relative to total input.

"All those refiners who can make 80 octane all purpose gasoline should maximize its production at the expense of motor gasoline."

The permission to use West Texas oil was part of the PAW program to develop the distribution of crude from that area, which it is estimated can supply an additional 235,000 barrels daily to help take up the decline in available supplies in Districts 2 and 3. The 1,410,000 barrel-allowable represents the maximum which can be supplied from the fields on which the southwest refineries normally depend.

It was explained by Davies that the additional production expected of the District 3 refineries will help increase inventories on the Gulf Coast, which have been rapidly depleted during the past few months.

"Under the August crude allowables the refineries will continue making the maximum quantity of war products possible," he said. "The ceiling unlimited provision will enable refineries to increase their gasoline and heating oil inventories. How many additional barrels a day can be run, over the 1,410,000-barrels-a-day allotment can not be determined at this time. It will depend upon transportation facilities that can be made available. Transportation in the *Southwest* is still tight. We believe, however, that the quantity of additional crude runs will be appreciable."

Buna Rubber Royalty-Free Licenses Extension Planned

An agreement under which holders of patents on Buna rubber will grant royalty-free licenses to Rubber Reserve Company, which in turn will issue similar sub-licenses to private corporations, has been filed with the Department of Justice with the approval of WPB Chairman Donald M. Nelson.

Such agreements are to run for the life of the patents. They will cover patents for all Buna rubber except special purpose rubbers mainly adapted for

use other than as a general substitute for natural rubber in tires and other principal rubber products.

Incorporated in the contract is a provision that Rubber Reserve's right to grant sub-licenses shall remain in force after the war period with respect to lessees and original purchasers of government-owned Buna rubber plants the construction of which was begun prior to the end of the war period, but licenses granted after the war period shall be limited to rubber manufactured in the government-owned plant leased or purchased by the sub-licensee.

Nelson also sent to the attorney general correspondence relating to the formulation and execution of a plan for cooperative action between the Neches Butane Products Company, Atlantic Refining Company, Socony-Vacuum Oil Company, Pure Oil Company, The Texas Company and Gulf Oil Corporation in the construction and operation of plant facilities for the production of 100,000 short tons of butadiene annually for sale to Rubber Reserve Company.

Bureau of Mines Studies Making Oil from Coal

Studies in the production of oil and gasoline from coal will be one of the major phases of Bureau of Mines fuel research work during the current fiscal year, for which an appropriation of $375,000 has been provided by Congress, it was disclosed July 27 by Secretary Harold L. Ickes.

Designed to cope with problems of the wartime supply of fuels for the military and industrial machines and civilians, the current program will be confined to studies which promise immedate results, these including, in addition to hydrogenation, the substitution of coal-oil mixtures (colloidal fuel) for coal.

In its hydrogenation work, the bureau already has in operation one small laboratory-scale pilot plant for direct hydrogenation by the Bergius method and is ready to install and operate an industrial-scale pilot plant if funds are provided. Another small laboratory plant which will synthesize oil by combining carbon monoxide and hydrogen by the Fischer-Tropsch process is under construction, for operation to provide a basis for the design and construction of an industrial-scale pilot plant.

ODT Orders Barges on Ohio To Move Halted Oil

Taking unusual action to move some 90,000 barrels of products which were halted at Cairo, Illinois, because of lack of Marine Transportation Company towboats, ODT last week ordered the Inland Waterways Corporation to move a string of barges up the Ohio River to whatever point it may be taken over by the Marine company's boats.

The action was taken to maintain an unbroken flow of products to the western terminus of the Sinclair pipeline at Steubenville, Ohio, and was necessitated by unloading difficulties which temporarily tied up Marine company equipment.

The Inland Waterways Corporation moves barges up the Mississippi but ordinarily does not operate on the Ohio.

East to Get Larger Gasoline Supplies Quickly; Other Areas May Be Trimmed

Plans for increasing gasoline rations for motorists on the East Coast are being perfected by PAW, with a view to submitting recommendations to OPA before August 15.

Aware of PAW plans, OPA officials already have begun planning for equalization of rationing in District 2 and 3, and were represented as preparing to institute the new system September 1.

The current certification of gasoline for civilian use by PAW is 328,000 barrels daily, but reports indicate that actual consumption is running about 25,000 barrels over that figure. No indication has been given of the amount which Ickes will tell OPA is available for civilians, but it is expected to be close to 400,000 barrels daily. This would permit a general restoration of normal delivery and public transportation schedules throughout the shortage area and might also serve to bring the value of "A" coupons up from 1½ to three gallons, although it is doubtful if the original value of four gallons can be restored at this time.

The higher certification will be conditioned upon the imposition of rationing in Districts 2 and 3 where heretofore consumption has been controlled only for the purpose of saving tires.

Consumption in District 2 where requirements were estimated at 500,000 barrels daily, have never actually been reduced to that figure but, on the contrary the overage has been increasing steadily in recent months and now is believed to be close to 100,000 barrels daily. PAW is expected to recommend that consumption be brought down to the 500,000-barrel mark through better control of "B" and "C" rations.

District 3 consumption has never been very heavy and is estimated to be currently about 136,000 barrels daily, but PAW will recommend that here, too, greater care be taken with respect to "B" and "C" mileage.

How the additional gasoline available to the East will be divided between the several classes of consumers and whether the ban on pleasure driving is to be lifted will be decided on by OPA.

Conversations between PAW and OPA have developed that while the latter is anxious to give better rations in the East it is reluctant to take restrictive action in the other areas and is representing that it is not prepared for quick rationing in Districts 2 and 3. However, it is understood that PAW will make its certifications and recommendations and, if they are not put into effect, leave it to Brown to explain himself out of the spot in which he will find himself.

At a press conference July 29 Ickes refused to commit himself either as to the date he will suggest for relaxation of restrictions or the amount of additional gasoline to be made available, but expressed gratification at having reached a point where the most burden could be lightened.

"From the very beginning," he said, "our policy was to build up supplies on the East Coast. A variable factor, of course, has been foreign demand and the demand of our own armies. We had to get oil into the East Coast and we couldn't get enough in. Now we have reached a point which we knew we would reach sooner or later from the time we started the Big-Inch.

"Now, Big-Inch is at work so we know that the tank cars that we used to bring oil from Norris City east will be available. That is the reason we forsee we are going to be able to bring more into the East, and we have always said that, while we did not believe in rationing on the share-misery theory, if we could get more gasoline in from other sections of the country we could cut the Middle West and Southwest to get more gasoline for the East.

"The 20-inch line is coming along; it is going to help the situation even more. We are getting more transportation. That has been our job from the beginning.

Elk Hills Contract Not Yet Formally Cancelled

Charges that the Navy Department has never cancelled the Elk Hills contract with Standard Oil Company (California) were voiced July 29 by Representative J. Hardin Peterson of Florida, chairman of the House Public Lands Committee, which some weeks ago held extensive hearings on the agreement.

Peterson charged that the contract has never formally been terminated and that Standard is still operating under its terms and that, in general, "the actual situation is as it existed before."

A revised agreement designed to be substituted for the much-attacked contract of last November 18 has been rejected by the Department of Justice as embodying the same objectionable features which originally led to its condemnation he said.

"There seems to be a general impression that the contract has been cancelled," Peterson said, "but the fact is, no written notice rescinding the contract has ever actually been given. Operations are still going on under the contract. Actual cancellation has been held up by failure of the Navy and the company to write an agreement the Department of Justice will accept as legal.

Over the week-end Peterson disclosed plans for a new investigation of the Elk Hills situation promising "New facts and new personalities," and indicated that the probe would start shortly after Congress reconvenes September 13.

Meanwhile, the Navy Department admitted that the original contract has not yet been abrogated explaining that an agreement submitted to the Department of Justice in June was disapproved and a satisfactory instrument for terminating the deal has not yet been perfected.

Official U. S. Navy Photograph

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Texas Output Can Increase 240,000 Bbls. Oil Companies Tell Railroad Commission

In its search for oil, conducted through testimony by operators, the Texas Railroad Commission has located 240,000 barrels which can be added to the state's production. All fields involved so far produce sweet oil. Hearings on West Texas fields, which were set for August 2 and 4, have been postponed until August 9 and 10.

This week the commission added 117,500 barrels found in 14 fields in the Gulf Coast area. Frank Michaux, Inc., estimated North Withers could produce 18,400 barrels, 10,427 barrels more than present production.

Sun Oil Company recommended 6000 barrels for Oyster Bayou, an increase of 2200 barrels. Humble Oil & Refining Company estimated maximum production for the Raccoon-Bend Cockfield at 9000 barrels, 4940 barrels above the July allowable.

For Fig Ridge, Stanolind Oil & Gas Company thought Hastings could produce 60,000 barrels daily, 11,985 above the July allowable.

Humble Oil & Refining Company estimated Rowan could produce 1000 barrels, a gain of 650 barrels. At Stowell, Glenn McCarthy recommended a total of 4823 barrels daily, up 563 barrels. Humble estimated Sugarland could produce 10,000 barrels, 6000 more than the July allowable; Thompson could produce 30,600, up 12,600 barrels; South Thompson could produce 7500, 830 barrels more than it is producing now; Tomball can produce 10,000, 250 barrels more than the July allowable; and Webster, 60,000 barrels, an increase of 34,140 barrels.

Gulf Oil Corporation thought Big Creek could produce 800 barrels, up 700 barrels daily, and that Hankamer could produce 360 barrels more for a total of 800 barrels per day.

Humble Oil & Refining Company estimated that Van could produce 40,000 barrels daily, 20,832 barrels more than it is producing now.

Texas Statewide Hearing Set for August 17

The Texas Railroad Commission has scheduled the next statewide proration hearing for August 17 at Austin. The hearings to determine the availability of crude in West Texas originally set for August 2 and August 4 have been postponed to August 9 and August 10.

The Commission has set a hearing on August 5 to determine whether the Halley and Emperor fields in Winkler County are producing from the same reservoir, and whether the method of allocation should be identical for the two fields.

Also set is an application of Seaport Oil Company to increase the allowable in the Mauritz field, Jackson County.

The application of Humble Oil & Refining Company to water flood leases in the Kermit field, Winkler County, Texas, will be heard August 5.

Hearing on a proposal by Lewis Crouch for a salt water injection program in the Larremore field, Caldwell County, will be held August 6. The plan contemplates returning the water to the Edwards lease.

Hearing to determine whether the gas-oil ratio rule for the KMA field, Wichita County, should be revised is set for August 7.

On August 9, a hearing will determine the maximum productivity capacity of the following fields in District 8, West Texas: Abell, Cedar Lake, North Cowden, South Cowden, Embar, Embar Permain, Foster, Fuhrman, West Fuhrman, Goldsmith and Yates.

On August 10, a hearing will determine the maximum productivity capacity of the following fields in District 8, West Texas: Jordan, Magnolia Sealey South, McElroy, Sand Hills Ordovician, Sand Hills Permian, Seminole, Slaughter, Spencer, Waddell, Walker and Wasson.

Application of the L&G Oil Company for relief from the Commission order providing for a water-oil ratio allowance in the East Texas field will be heard August 14.

Hearing to determine whether the Commission should forbid further injection of salt water through the Humble-Kee well in the East Texas field is set August 16. The well is operated by the Salt Water Disposal Company and the offsetting operators have protested that it is damaging their properties.

This hearing is of unusual importance, because it may establish a precedent concerning the operation of salt-water-disposal wells throughout Texas. The hearing was originally set for July 29, but was postponed to give operators more time to gather information.

Commission and Operators Study Yates Water Problem

Control of salt water production in the Yates field, Pecos County, West Texas, is being studied by operators and the Texas Railroad Commission. Looking well into the future, when the field may be able to produce far more oil than is allowed now, these plans contemplate pressure maintenance as well as disposal of the water.

The field is producing from a limestone reservoir which has produced 270,000,000 barrels of oil since it was discovered in 1926. It includes about 20,000 productive acres. Yates was the first field in Texas subjected to proration, a voluntary plan which was installed originally in 1927.

There are now 558 producing wells in the field, from which 125,000,000 barrels of oil has been produced during the past 12 years. Because of the careful control of gas-oil ratios, which entailed closing in some wells on the gas cap, the average pressure has dropped only about 74 pounds during that time. This is a decline of .59 pounds per million barrels of oil produced.

Although there are 84 wells in the field making water, only 5 of them produce more than 100 barrels of water per day. It is to correct this situation that plans are being made now. In June the field produced 151,010 barrels of water, and 80 percent of it came from the 5 wells producing the most water. This means that the remaining 79 wells produced an average of 1,529 barrels of water for the month, or 51 barrels per day.

The five wells which give trouble are located on the flanks of the field.

The offending wells are:

Shell Oil Company's Smith E-2, which produced 17,700 barrels of water and 389 barrels of oil during June. The company plans to abandon this well.

Phillips Petroleum Company's Monroe 2, during June produced 3000 barrels of water and 739 barrels of oil, or 4 barrels of water to 1 of oil. However, since July 1, water production has risen to 200 barrels daily without any increase in oil produced.

Shell Oil Company's Smith C-2 produced 9900 barrels of water and 684 barrels of oil in June.

Cardinal Oil Company's Smith D-2, in the northwest part of the field, produced nearly 100 barrels of water daily. The company plans to abandon this well.

Grayburg Oil Company's Riverbed 12 produced 3000 barrels of water with 300 barrels of oil.

Continental Oil Company's Yates A-2 produced in June 88,560 barrels of water and 429 barrels of oil, or at a ratio of 206/1. The high water production from this particular well prompted the operators to act now, and P. P. Gregory, chairman of the engineering committee for the field, expressed the opinion that closing it would be beneficial to the entire field. He recommended a water-oil ratio of 10/1, but agreed that a 5/1 ratio would be better, as it would more nearly approach shutting off all the water production. The commission appeared to lean toward the 5/1 ratio as the more conservative program. More wells would be affected under this plan. Only a few would have water production reduced with the 5/1 ratio.

All of the operators appeared to be interested in some program that would close in the Continental well which produces most of the water, 58.64 percent of the total water produced in June. The owner favored some plan which would permit closing in the well and transferring the allowable to some other well on the same unit. The company has four or five wells which could produce all or part of the oil. This plan has been advocated by the company for some time, but other Yates operators have opposed it.

The Ohio Oil Company proposes a water-oil ratio or some premium for returning water to the reservoir. This calls for giving operators 1 barrel more oil for every 50 barrels of water injected. The maximum allowance would be 8 barrels for any well, and this would be produced from other wells. The wells to which premium oil is assigned could produce no more than 6 barrels of the extra allowance.

Petroleum Association To Meet in New York

National Petroleum Association announces its forty-first annual meeting to be held in New York City, at the Waldorf-Astoria hotel, Tuesday and Wednesday, September 21 and 22. The program, now in process of arrangement will deal with war and post-war problems.

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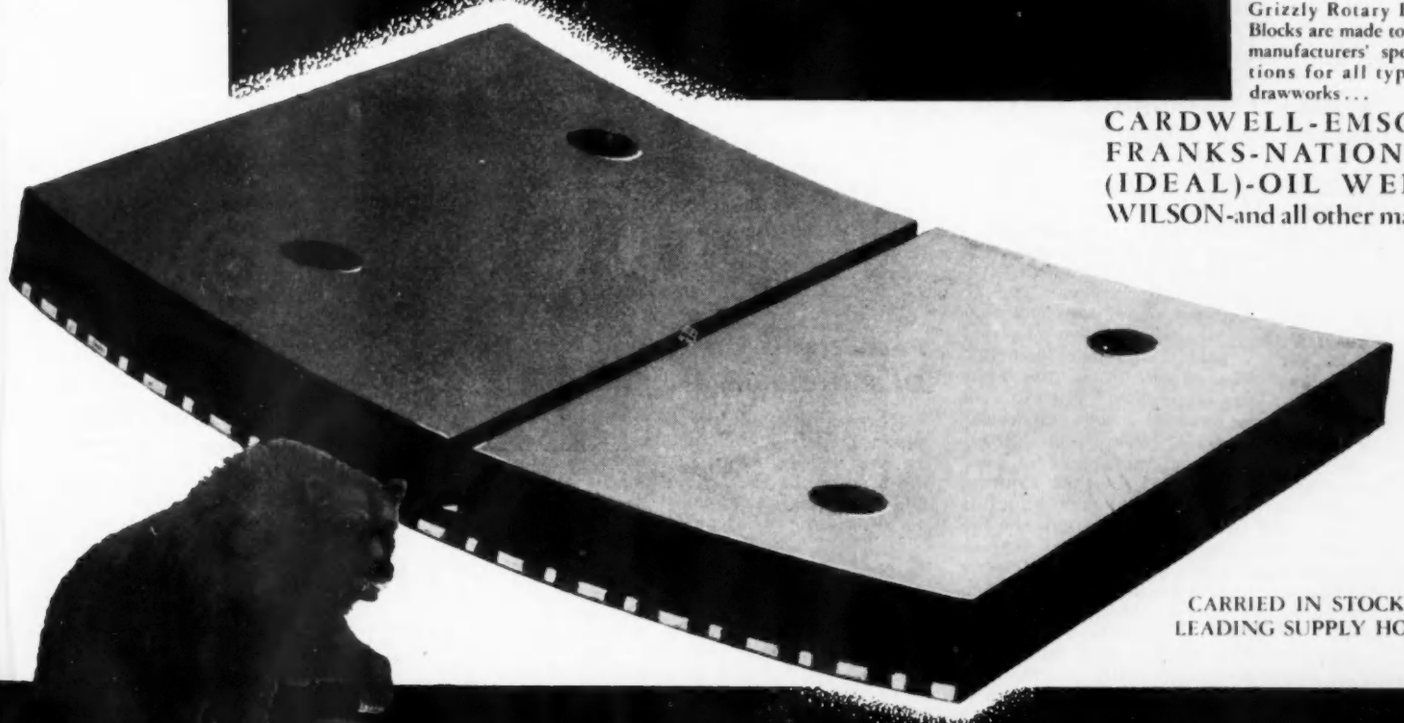

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Oil and Gas Engineers Have Meeting in Pennsylvania

The oil and gas section of the Engineers' Society of Western Pennsylvania, on July 16, transferred summer activities to the William Penn Hotel in Pittsburgh.

A total of 176 members turned out for a technical meeting in the afternoon, followed by a reception and dinner in the evening. The afternoon program was in charge of D. D. Foster, assistant sales manager of the Pittsburgh Equitable Meter Company. B. C. Thiel, consulting engineer for the Cooper Bessemer Corporation, read a paper "Modern Compressor Stations," and James F. Swain, geologist with Huntley and Huntley, covered the subject of "Interpretation of Driller's Log." Through the courtesy of the Barrett Division, Allied Chemical and Dye Corporation, the group was then shown the motion picture "Oil for War"—the story of the Big-Inch Line.

A dinner followed, under the sponsorship of a committee headed by H. H. Pigott of Equitable Gas Company.

Oklahoma Indian Lands to Be Offered for Leases

Sealed bids for oil and gas leases on restricted lands will be opened at 10 a. m. August 24 at the Indian agency Muskogee, Okla.

Offerings include 69 tracts totaling 4,419 acres of land. Tracts by counties are as follows: Creek, three tracts, 240 acres; Okfuskee, 14 tracts, 1,268 acres; Hughes, five tracts, 367 acres; Seminole, 12 tracts, 768 acres; Pontotoc, six tracts, 346 acres; McLain, 22 tracts, 1,080 acres; Stephens, two tracts, 90 acres; Johnson, one tract, 20 acres; Marshall, four tracts, 280 acres.

Missouri Geological Survey Issues Two State Maps

The Missouri Geological Survey, Rolla, Missouri, has issued two maps of the state showing magnetic and gravimetric anomalies, respectively.

The magnetic map shows anomalies on a 100-gamma interval, from observations made at one-mile intervals (usually section corners), except in the central Ozark region where the observations were made along the principal highways. Every portion of the state shows striking anomalies. The area of pre-Cambrian outcrop stands out as the area of the most pronounced differences in magnet attraction. The anomaly at Bourbon, in Crawford County, which has a maximum of 6500 gammas is the most pronounced anomaly in the state where the pre-Cambrian formations are covered with a considerable thickness of sediments. The Malden anomaly, in New Madrid County, shows a strikingly polarized area extending approximately eight miles east and west by four miles north and south. Both this area and the Bourbon high are reproduced on an enlarged scale on the border of the map.

The gravimetric map was prepared from observations made at approximately five-mile intervals along the principal highways. The gravimetric anomalies are contoured on 100-gravitational-unit intervals. In many areas there is concordance of the gravimetric and magnetic anomalies. This is well illustrated in the Malden, Hunterville and Bourbon areas. One of the most striking anomalies is the differences that are found in the Joplin area, although no relation to the ore deposits is apparent.

These two maps are on the same scale as the State Geological Map (1:500,000) and can be obtained at a cost of fifty cents each, by addressing the Missouri Geological Survey, Rolla, Missouri.

"Fightin' Oil"—A Book By Harold L. Ickes

"Fightin' Oil," in the words of its author, Petroleum Administrator for War, Harold L. Ickes, "has an extremely important mission—to clear up a few issues that seem to have too many people confused and, at the same time, to give a bird's-eye view of the scope of oil's contribution to the winning of the war."

Thus the latest book on oil, written by a member of the President's cabinet, becomes the official pronouncement of the petroleum industry and to the public by the administration, of oil's place and importance in the war as interpreted by the Petroleum Administrator, as well as an interpretation of his job in coordinating this mighty industry.

Quoting further from Mr. Ickes: "The Petroleum Administration for War has access to all of the facts relating to petroleum production, distribution, and consumption — past, present, and well into the future. If the consumers of oil would be guided solely by the information and the advice originating from this office, their minds would be easier and so would our jobs.

"The more nearly to achieve such an end this book is written. If the people will read it sympathetically, they will get straighter on what the battle of oil is about, and, I believe, that clearer understanding will have a stimulating and salutary effect on public thinking."

The book is interestingly written. It sets forth clearly what our oil problem is and how it is being met. Publisher is Alfred A. Knopf, New York. Price $1.75.

Restrictions Eased on Sale Of Petroleum Aromatics

Restrictions on the distribution of aromatic petroleum solvents were eased by WPB July 29 in an order increasing from 60 to 550 gallons the maximum which could be delivered on small orders without WPB authorization.

However, while deliveries of not exceeding 60 gallons in any calendar month may be used for any purpose, deliveries between 60 and 550 gallons may be used only for certain specified purposes, toluene range solvents being useable only for barrage balloon cloth treatment, aircraft finishes, synthetic rubber manufacture and processing, or impregnation of wire and cable coatings, and other solvents in 109 operations specified in the order.

The change in requirements will eliminate more than half of the present applications for allocations, which all told accounted for only a little more than three percent of the supply.

Service Stations Will Encourage Tire Care

With little prospect of any volume of new tires for civilian consumption for at least a year, the oil industry last week undertook another campaign to aid the government, in the shape of a nation-wide tire-recapping drive.

The program was developed by PIWC following a warning by Rubber Director William M. Jeffers that few tires would be made available, and will be conducted through the council's subcommittee on product conservation.

The actual campaigning will be done through the service stations of the country, who will be urged to drive home to their customers the need for obeying the 35-mile limit, keeping their tires properly inflated, having them inspected regularly and to have them recapped as soon as it is necessary.

"No one knows just how much mileage is left in the average tires on America's cars," PIWC Chairman William R. Boyd, Jr., said, "but the service station operator is in the best position of anyone to know when his customers' tires are beginning to go. If only the most essential drivers are to get any new tires for at least 12 months, as Mr. Jeffers said, many millions of A-card holders might be forced off the roads—unless they are told to recap before it is too late."

In an open letter to gasoline and tire dealers, Jeffers declared that "despite all statements and rumors to the contrary, the stockpile of new and usable tires is dwindling rapidly and the lowest point in history is going to develop between now and the end of September.

"The very few experimental synthetic tires now being made and scheduled to be made during the next few months are just a drop in the bucket compared with the need," he said. "I can see no immediate relief. America's newly-developed supply of synthetic rubber must be diverted first to hundreds of military needs. America's rubber factories must concentrate their facilities on the manufacture of the most vital war products first.

"For these reasons, even under the most optimistic conditions, we should not expect to get many tires even for essential civilian driving until late this year or mid-1944. Only those drivers whose work is most essential to the winning of the war can count on new replacement tires for at least the next 12 months."

August Allowables for Three Texas Fields Increased

The Texas Railroad Commission, last week, revised allowables for three fields for the month of August: Wasson will be permitted to produce 22 days, an increase of 4 days; the Knight Pool in Young County was exempt from all shut downs; and the Willamar field allowable was raised from 450 to 704 barrels daily.

Commission Revises Mayo And Harmon Allowables

The Texas Railroad Commission has revised its August proration order, increasing the allowable of the Mayo field from 1027 to 1699 barrels daily, and decreasing Harmon from 940 to 879 barrels per day. Both fields will be allowed to produce 28 days.

High Refinery Runs Keep Production of Oil Products in Line with Heavy Demand

Generally favorable results in supplying heavy demand for oils were achieved by the industry in the week ended July 24, latest available statistics indicated.

Crude oil production was further stepped up to another new high for this year, and refinery runs of crude were somewhat higher than the week before and within about 40,000 barrels of this year's peak. The runs to stills were only about 150,000 barrels per day under the all-time peak which was reached in the fall of 1941.

In reflection of the large crude runs to stills, production of all of the major products was well in line with current requirements. Whereas withdrawals of residual fuel oil from storage have been common most of this year, there was in the week of July 24 only a nominal draft of 25,000 barrels from storage. The stocks of residual fuel in the United States totaled 66,992,000 barrels at the end of the week and were about 11 million barrels, or 14 percent, lower than at the corresponding time last year.

Comparatively large production of gas oil and distillate fuel made it possible to add 853,000 barrels of those light oils to storage during the week—a normal addition for this time of the year. In the preceding week there had been an 83,000-barrel reduction in stocks. The stocks of light fuel oils totaled 35,889,000 barrels on July 24, and that total was practically the same as the 35,966,000 barrels on hand July 25, 1942.

As customary for this time of the year, there occurred a substantial reduction of gasoline stocks. United States inventories of finished and unfinished gasoline totaled 75,714,000 barrels on July 24, down 851,000 from the beginning of the week. The stocks of gasoline now on hand are 6,500,000 barrels, or 8 percent, lower than at this time last year, indicating fairly satisfactory relation to the present subnormal demand.

The reduction in gasoline stocks occurred in spite of the fact that production was 234,000 barrels greater for the week than in the preceding 7 days. The refineries turned out 11,423,000 barrels of gasoline, including natural gasoline blended at refineries, and this production was 5 percent greater than that of 10,864,000 barrels in the week of July 25, 1942.

Crude runs to stills averaged 3,973,000 barrels in the week of July 24, up 11,000 barrels from the week before. The runs were 315,000 barrels a day, or 8.6 percent, higher than in the corresponding

Crude Oil Production in the United States

(Estimates compiled by The Oil Weekly. All figures indicate daily averages, in barrels.)

STATE OR DISTRICT	PRODUCTION IN WEEK ENDED July 31	July 24
Arkansas	77,250	77,100
California	769,200	787,150
Long Beach	30,900	31,000
Midway-Sunset	56,200	56,150
Kettleman Hills	41,200	41,700
Wilmington	92,350	93,850
Rest of State	548,550	564,450
Colorado	7,200	7,250
Illinois	217,500	214,100
Salem	30,000	29,100
Louden	39,000	38,200
Other New Pools	137,500	135,800
Old Pools	11,000	11,000
Indiana	14,150	12,500
Kansas	306,150	306,150
Kentucky	23,100	21,250
Louisiana	349,050	349,350
North	85,000	85,200
South	264,050	264,150
Michigan	55,750	55,800
Mississippi	54,000	53,900
Missouri	95	95
Montana	21,950	21,450
Nebraska	2,150	2,200
New Mexico	104,100	104,150
New York	14,450	14,100
Ohio	8,700	8,650
Oklahoma	333,500	332,950
Oklahoma City	58,700	57,300
Seminole Area	73,100	72,650
Rest of State	201,700	203,000
Pennsylvania	44,250	45,600
Tennessee	30	30
Texas	1,616,650	1,617,450
Upper Gulf Coast	413,050	413,300
East Texas Field	371,400	371,350
Rest of Eastern Texas	128,050	128,400
Lower Gulf Coast	147,200	147,050
Southwest Texas	66,350	66,600
South Central Texas	16,800	16,800
West Texas	245,450	245,650
North Texas	137,850	137,800
Panhandle	90,500	90,500
Utah	10	10
West Virginia	9,000	9,500
Wyoming	96,600	93,800
Total United States	4,124,835	4,134,535

Trends of Operations and Changes in Stocks

Figures on crude stocks are from Bureau of Mines weekly reports; all others from American Petroleum Institute weekly reports, which are estimates on Bureau of Mines basis.

(All figures in thousands of barrels—add 000)

HIGHS AND LOWS OF RECENT YEARS

ITEM	Crude Oil Prod. Barrels Daily	Crude Oil Prod. Week Ended	Runs to Stills Barrels Daily	Runs to Stills Week Ended	Crude Stocks Barrels	Crude Stocks Week Ended	Gasoline Stocks Barrels	Gasoline Stocks Week Ended	Gas Oil & Distillate Stocks Barrels	Gas Oil & Distillate Stocks Week Ended	Residual Fuel Oil Stocks Barrels	Residual Fuel Oil Stocks Week Ended
Highs:												
1939	3,910	8- 5	3,650	10-21	278,607	5-26	87,769	4-22	39,562	10-28	116,237	8-26
1940	3,890	3-16	3,690	6-22	265,865	8-31	102,817	4-20	49,051	10-19	109,135	9-14
1941	[1]4,337	11-22	[1]4,120	10-18	266,187	3-29	99,727	3-29	[1]54,983	11-15	102,448	1- 4
1942	[1]4,337	2- 7	3,961	1- 3	263,208	3-28	[1]109,281	3-14	49,861	11-14	95,857	1- 3
1943	4,119	7-24	4,015	6-26	245,752	5-29	94,159	3-20	42,913	1- 2	72,881	1- 2
Lows:												
1939	[3]1,601	8-26	3,125	2-18	[2]229,127	10-12	71,152	10- 7	20,722	4-15	105,397	4- 8
1940	3,335	11-30	3,370	1- 6	237,339	1-27	79,847	11- 9	23,551	4- 6	102,344	2-10
1941	3,364	1-11	3,490	1-18	240,399	11-15	79,923	10- 4	28,381	4-12	90,914	7-12
1942	3,297	7- 4	3,393	5-23	231,896	12-12	75,934	12- 5	29,240	4-25	72,962	12-26
1943	3,821	1- 9	3,579	3-13	232,191	1- 9	75,714	7-24	30,732	4- 3	66,470	7- 3

TRENDS OF 1942 AND 1943

Trends in Week Ended:	Crude Oil Production Daily	Crude Oil Runs to Stills Daily	Crude Oil Stocks Week End	Gasoline Production Weekly	Gasoline Stocks Week End	Gas Oil & Distillate Production Weekly	Gas Oil & Distillate Stocks Week End	Residual Fuel Production Weekly	Residual Fuel Stocks Week End
1942:									
January 3	4,038	3,961	244,440	13,797	92,987	3,855	49,357	6,918	95,857
January 31	3,871	3,848	250,740	13,292	97,810	3,817	40,674	6,640	91,189
February 28	4,016	3,675	259,373	12,131	105,635	3,799	34,547	6,813	88,285
March 28	3,820	3,667	263,208	11,663	105,624	3,661	31,756	6,344	83,045
April 25	3,581	3,506	257,073	10,535	102,897	3,267	29,240	6,869	81,107
May 30	3,877	3,522	255,023	10,478	95,355	3,034	31,384	6,993	79,628
June 27	3,719	3,581	253,364	10,713	88,396	3,549	32,851	6,615	77,304
July 25	3,691	3,658	249,262	10,864	82,281	.....	35,966	.....	77,816
August 29	3,964	3,697	249,007	11,300	80,831	.....	42,060	.....	78,034
September 26	3,909	3,802	242,785	10,954	80,550	.....	45,945	.....	78,943
October 31	3,901	3,731	239,266	11,153	79,159	.....	48,131	.....	79,166
November 28	3,878	3,736	234,850	11,269	78,854	.....	49,739	.....	77,796
1943:									
January 2	3,871	3,734	233,938	10,957	82,420	4,285	42,913	7,683	72,881
January 30	3,826	3,698	233,863	10,339	88,830	3,888	37,857	7,452	70,763
February 27	3,873	3,709	235,217	10,566	93,157	4,230	32,939	7,839	70,140
March 27	3,896	3,742	239,126	10,231	94,079	3,541	30,980	8,018	67,938
April 24	3,913	3,737	242,035	10,583	91,001	3,954	31,142	8,168	67,455
May 29	3,970	4,679	245,752	10,656	83,937	3,798	32,274	7,672	67,682
June 26	3,955	4,015	242,657	11,092	79,589	3,876	34,044	8,126	67,960
July 3	4,008	3,905	240,927	13,892	78,141	3,659	34,380	7,687	66,342
July 10	4,090	3,952	239,091	11,231	77,733	3,697	35,119	8,192	67,142
July 17	4,103	3,962	237,440	11,189	76,565	3,989	35,036	8,331	67,017
July 24, 1943	**4,119**	**3,973**	.....	**11,423**	**75,714**	**3,896**	**35,889**	**8,366**	**66,992**
July 25, 1942	3,691	3,658	[4]250,505	10,864	82,281	3,647	35,966	6,796	77,816
Change:									
In week	+16	+11	—1,651	+234	—851	—93	+853	+35	—25
In year	+428	+315	—13,065	+559	—6,567	+249	—77	+1,570	—10,824
In year	+11.5%	+8.6%	—5.2%	+5.1%	—7.9%	+6.8%	—0.2%	+23.1%	—13.9%

[1] All time peak [2] Lowest since April, 1922. [3] Lowest since October, 1922, due to shutdown of six Mid-Continent States. [4] Stocks, July 18, 1942.

week last year, when they averaged 3,658,000.

Crude-oil production in the United States, averaging 4,119,000 barrels in the new week, were up 16,000 barrels from the preceding week. This was 428,000 barrels a day, or 11½ percent, more than in the week of July 25, last year.

While the national picture was generally favorable, that in the East Coast shortage district was also, as the inventory situation was slightly improved there. The American Petroleum Institute reported that civilian stocks of petroleum products in the East had reached the highest point since February 7, although the total on hand was only 35.2 percent of normal. In standing at 35.2 percent, the Institute's index was up fractionally from the 35.0 a week previously, and it was well above the low mark of 25.5 percent recorded for May 8. This index is based on civilian supplies of gasoline, light heating oil, and heavy fuel oil.

California Is Leader in Decline of Production

United States crude oil production averaged 4,124,835 barrels per day in the week ended July 31, down 9700 barrels from the previous week, when a record for this year was set.

Mainly responsible for the decrease was California, which declined to 769,200 barrels daily from 787,150 in the week ended July 24. Other declines were in all cases nominal. Colorado was off to 7200 from 7250, Louisiana to 349,050 from 349,350, Michigan to 55,750 from 55,800, New Mexico to 104,100 from 104,150, Pennsylvania to 44,250 from 45,600, Texas to 1,616,650 from 1,617,450, West Virginia to 9000 from 9500.

Partially offsetting the above decreases were increases in several states. Arkansas was up to 77,250 from 77,100, Illinois to 217,500 from 214,100, Indiana to 14,150 from 12,500, Kentucky to 23,100 from 21,250, Mississippi to 54,000 from 53,900, Montana to 21,950 from 21,450, New York to 14,450 from 14,100, Ohio to 8700 from 8650, Oklahoma to 333,500 from 332,950, Wyoming to 96,600 from 93,800.

Louisiana August Allowable Increased 3896 Barrels

Louisiana allowables for August have been set at 358,867 barrels a day, an increase over July of 3896 barrels daily. All increases were assigned to South Louisiana fields, for a total daily average of 277,969, against 272,782 barrels daily for July.

290,000 Barrels Is August Allowable for Kansas

The Kansas Corporation Commission recommended an allowable of 290,000 barrels daily for August, including 5000 barrels of distillate and light end products. Formal approval by the Commission is anticipated in an early announcement.

Oklahoma Allowable Set At 385,000 Barrels Daily

Oklahoma allowables for August were fixed by the Corporation Commission at 358,000 barrels daily. This total includes 28,000 barrels of distillate and light ends. PAW's figure was 347,000 barrels.

Most Products in Strong Demand; Supplies Scarce

Markets generally continue tight, in spite of the fact that some relief has been afforded in the East Coast district by the opening of the eastern end of the Big-Inch pipe line.

In the Eastern area there has been particular scarcity of gasoline and fuel oil, with stocks of those products low, although supplies of kerosine have been comparatively free. Several suppliers have reported also a slightly improved supply of No. 2 fuel oil, due to the arrival of increased numbers of tank cars.

In the Western Pennsylvania refining district there is continuing heavy demand for all petroleum products. Meanwhile, supplies are increasingly scarce in reflection of a shortage of crude oil as well as because of the large demand. There is a particular shortage of petrolatums, which are in demand increasingly, and some refiners are several weeks behind with shipments. Several refiners have advanced their quotations to the highs of established price ranges, and a few are actively seeking higher ceiling prices for the product from OPA.

In the Middle West there is continued strong demand for most products, including particularly tractor fuel. Gasoline still is required in large volume, although there has been some easing of pressure for third grade from agricultural areas. Considerable easing of the fuel oil situation is anticipated in consequence of conversion of many war industry facilities to the use of coal, although some refiners report that they have not yet felt any effects of the conversions. Range oil meanwhile is in growing demand.

Increasing scarcity of gasoline is a feature of the markets in the Mid-Continent. Several refiners last week advanced their quotations on all grades of gasoline to the established ceilings, without losing any business. As plowing begins in the upper part of the Mid-Continent, agricultural demand is increasing, some refiners reporting exceptionally heavy shipments. There has not occurred any let-up in the demand for third grade gasoline. Burning oils are in remarkably strong demand, and with shipments 1 to 2 weeks behind, some refiners are limiting the takings of regular customers. Kerosine demand also is above available supply.

There has been no important change in the exceptionally tight markets of the Gulf Coast, with possible exception of increased scarcity of gasoline. Most products still are in very limited supply, despite the inactive export market.

Forty Acre Spacing Ordered For Winkler County Field

The standard 40 acre spacing of proration units for wells in the new Wheeler field, Winkler County, is provided in a new Railroad Commission order. Production is found in the Ellenberger at 10,500 feet.

Stanolind Oil and Gas Company sought 160 acre spacing because of the depth of the production and the fact that wells cost $200,000 each.

PIPE LINE REVIEW

Longview-Norris City Line Back at Capacity

Crude oil shipments through War Emergency Pipe Line, Inc.'s Longview-Norris City 24-inch carrier were scheduled to attain normal working schedule of 300,000 barrels of Texas and New Mexico oil daily as result of the restoration of the flooded booster station near Gale, Illinois, and the Arkansas River crossing near Little Rock the past week. The line has been operating with a temporary 20-inch river crossing since the pipe was parted May 17 by unusual floods.

Filling of the eastern extension of the 24-inch from Norris City to Phoenixville, Pennsylvania, began July 14 and during the first 10 days a total of 710,000 barrels of East Texas oil had entered the line, with first deliveries of oil into Phoenixville timed for August 8.

Supplemental supply of high-gravity crude was made available for the system on July 21 when an initial batch of 200,000 barrels from the Corpus Christi district entered the line at Longview. This oil is moved via tankers from Corpus Christi to Shell Pipe Line Corporation and Pan American Pipe Line Company's lines at Houston, then to Longview. Subsequent batches of Corpus Christi crude will comprise 240,000 barrel lots in a regular six-day cycle. West Texas and New Mexico sour oil is also on a six-day cycle of 480,000 barrel batches while the East Texas field and an occasional batch of Gulf Coast B grade will be utilized in filling the line.

Lula Gas Field in Oklahoma To Get Pipe Line Connection

Stanolind Oil & Gas Company and Amerada Petroleum Corporation's new gas field, known as the Lula field, Coal County, Oklahoma, is soon to be served by a pipe line under terms of a trade concluded with the Oklahoma Natural Gas Company.

The gas company will lay a 12-inch, 35-mile line from the field to connect with a 16-inch line now serving Tulsa. Capacity of the line will be from 20 to 50 million feet of gas daily, and it is to be completed before fall.

Further drilling in the field will follow.

Tax Ruling on Big-Inch

Rulings concerning taxes on the Big Inch pipe line were contained in an opinion issued by Attorney General Gerald Mann, last week. He held that the easement for the pipe line is taxable as part of the real property. This was true of pumping equipment and buildings as well.

However, because there was inadequate evidence that the line itself is a "fixture," it would be personal property and not subject to taxation under the real property laws.

Gravity-Scale Crude Oil Prices in Mid-Continent Fields

Posted in most instances between May 19 and May 21, 1941

GRAVITY	Oklahoma-Kansas		North Louisiana-Arkansas Mississippi					Inland Texas and New Mexico				South Texas		Texas Gulf Coast			Louisiana Gulf Coast						
	Stanolind, Gulf, Texas, Skelly, Barnsdall, Tidewater, Sinclair, Phillips	Carter, Magnolia, Shell	[1]Rodessa, etc.	[2]Champagnolle, etc. Tinsley, Miss.	Bonkie, Eola, Olla, S. Olla, Little Crk. (by Standard)	Lisbon, La (by Gulf)	[3]Atlanta, Buckner, etc., Ark.	North and West Central Texas	[4]Eastern Texas	Panhandle	West Texas, New Mexico	[5]Refugio Type	[6]Mirando Type	[7]Gulf Coast	[8]Anahuac Type	[9]Dickinson Type	[10]Gulf Coast	[11]Standard of La.	[12]Texas Co.	[13]Texas Co.	[14]Magnolia Pet. Co.	[15]Shell Oil Co.	Jennings (by Gulf)	[16]Rocky Mt. Area (Salt Creek, etc.)
17–17.9	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	$0.94	....	....	....
18–18.9	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.96	....	....	....
19–19.9	....	....	....	....	....	....	....	....	$0.80	$0.80	$0.70	$1.08	$1.03	$1.06	$0.98	$0.93	$1.06	....	....	....	.98	$0.99	....	....
20–20.9	$0.85	$0.75	....	....	....	....	$0.68	$0.85	.82	.82	.72	1.10	1.05	1.08	1.00	.95	1.08	$0.90	....	....	1.00	1.01	....	....
21–21.9	.87	.78	....	....	....	....	.70	.87	.84	.84	.74	1.12	1.07	1.10	1.02	.97	1.10	.92	....	....	1.02	1.03	....	....
22–22.9	.89	.81	....	....	....	....	.72	.89	.86	.86	.76	1.14	1.09	1.12	1.04	.99	1.12	.94	....	....	1.05	1.05	....	....
23–23.9	.91	.84	....	....	....	....	.74	.91	.88	.88	.78	1.16	1.11	1.14	1.06	1.01	1.14	.96	....	....	1.08	1.07	....	....
24–24.9	.93	.87	$0.88	$0.86	$1.03	....	.76	.93	.90	.90	.80	1.18	1.13	1.16	1.08	1.03	1.16	.98	....	....	1.11	1.09	....	....
25–25.9	.95	.90	.90	.88	1.05	....	.78	.95	.92 / .97	.92	.82	1.20	1.15	1.18	1.10	1.05	1.18	1.00	....	....	1.14	1.11	....	....
26–26.9	.97	.93	.92	.90	1.07	....	.80	.97	.99	.94	.84	1.22	1.17	1.20	1.12	1.07	1.20	1.02	....	....	1.17	1.13	....	....
27–27.9	.99	.96	.94	.92	1.09	$0.81	.82	.99	1.01	.96	.86	1.24	1.19	1.22	1.14	1.09	1.22	1.04	....	....	1.19	1.15	....	....
28–28.9	1.01	.99	.96	.94	1.11	.83	.84	1.01	1.03	.98	.88	1.26	1.21	1.24	1.16	1.11	1.24	1.06	$1.06	....	1.21	1.17	....	$0.96
29–29.9	1.03	1.02	.98	.96	1.13	.85	.86	1.03	1.05	1.00	.90	1.28	1.23	1.26	1.18	1.13	1.26	1.08	1.08	....	1.23	1.19	....	.98
30–30.9	1.05	1.05	1.00	.98	1.15	.87	.88	1.05	1.07	1.02	.92	1.30	1.25	1.28	1.20	1.15	1.28	1.10	1.10	$1.05	1.25	1.21	....	1.00
31–31.9	1.07	1.07	1.02	1.00	1.17	.89	.90	1.07	1.09	1.04	.94	1.32	1.27	1.30	1.22	1.17	1.30	1.12	1.12	1.07	1.27	1.23	$1.07	1.02
32–32.9	1.09	1.09	1.04	1.02	1.19	.91	.92	1.09	1.11	1.06	.96	1.34	1.29	1.32	1.24	1.19	1.32	1.14	1.14	1.09	1.29	1.25	1.09	1.04
33–33.9	1.11	1.11	1.06	1.04	1.21	.93	.94	1.11	1.13	1.08	.98	1.36	1.31	1.34	1.26	1.21	1.34	1.16	1.16	1.11	1.31	1.27	1.11	1.06
34–34.9	1.13	1.13	1.08	1.06	1.23	.95	.96	1.13	1.15	1.10	1.00	1.38	1.33	1.36	1.28	1.23	1.36	1.18	1.18	1.13	1.33	1.29	1.13	1.08
35–35.9	1.15	1.15	1.10	1.08	1.25	.97	.98	1.15	1.17	1.12	1.02	1.40	1.35	1.38	1.30	1.25	1.38	1.20	1.20	1.15	....	....	1.15	1.10
36–36.9	1.17	1.17	1.12	1.10	1.27	....	1.00	1.17	1.19	1.14	1.04	1.42	1.37	1.40	1.32	1.27	1.40	1.22	1.22	1.17	....	....	1.17	1.12
37–37.9	1.19	1.19	1.14	1.12	1.29	....	1.02	1.19	1.21	1.16	1.06	1.44	1.39	1.42	1.34	1.29	1.42	1.24	....	1.19	....	....	1.19	1.14
38–38.9	1.21	1.21	1.16	1.14	1.31	....	1.04	1.21	1.23	1.18	1.08	1.46	1.41	1.44	1.36	1.31	1.44	1.26	....	1.21	....	....	1.21	1.16
39–39.9	1.23	1.23	1.18	1.16	1.33	....	1.06	1.23	1.25	1.20	1.10	1.48	1.43	1.46	1.38	1.33	1.46	1.28	....	1.23	....	....	1.23	1.18
40 & Up	1.25	1.25	1.20	1.18	1.35	....	1.08	1.25	1.27	1.22	1.12	1.50	1.45	1.48	1.40	1.35	1.48	1.30	....	1.25	....	....	1.25	1.20

[1] Gulf schedule for Caddo, Homer, Haynesville, Bull Bayou, Crichton, De Soto, El Dorado and Rodessa, Texas. Standard of La. schedule for Cotton Valley, Rodessa, Shreveport (Cross Lake), and Caddo. Magnolia schedule for Haynesville, Cotton Valley, Rodessa, and Miller Co., Ark. Texas Co. schedule for "North Louisiana."

[2] Schedule of Standard of La. for Catahoula Lake, Elm Ridge, Hemphill, De Soto, Sabine, Fouke, Homer, Miller Co., Sugar Creek. Schedule of Root Petroleum Co. for Nick Springs, Urbana light, Schuler sweet, Rainbow, South Field (El Dorado), and Champagnolle.

[3] Schedule of Standard of La. for Atlanta, Buckner, Magnolia, Patton, Schuler: Jones sand, Village. Schedule of Root Petroleum Co. for Schuler: Reynolds lime, and Schuler: Jones sand.

[4] Humble schedule for Anderson, Cherokee, Limestone, and Navarro counties and Navarro Crossing field, except that prices from 80 to 92 cents represent postings only for Hawkins field, Wood County. For Talco crude, Magnolia's prices are same as Humble's for Hawkins. Rodessa, Texas, prices are same as in Rodessa, La.-Ark.

[5] Schedule for Refugio, E. White Point, Greta, Melon Creek, Midway, Minnie Bock, O'Connor-McFaddin, Plymouth, Saxet, Taft, and Tom O'Connor.

[6] Schedule for Blanchard, Bridwell, Colorado, Comitas, Eagle Hill, Escobas, Fitzsimmons, Glen, Government Wells (N. and S.), Heyser, Hoffman, Kelsey, Kohler, Loma Novia, Lundell, Manila, Mirando Valley, Placedo, Randado, Sarnosa, and Tesoro.

[7] Humble schedule for Amelia, Clear Lake, Goose Creek, Hastings, Magnet, Mykawa, Mykawa new, Raccoon Bend, South Thompsons, Sugarland, Thompsons, Webster. Texas Co. schedule for Ariola, Ganado, Hamman, Hillje, Humble, Kubela, Magnet, Manvel, Markham, Mauritz, Old Ocean, Pickett Ridge, Port Neches, Sour Lake, West Columbia, Withers; except that schedule provides $1.36 top, 34 gravity. Pan American Prod. Co. schedule for Hastings and South Houston. Gulf schedule for Spindle Top, Sour Lake, Lovells Lake, West Beaumont, Goose Creek, South Liberty, Big Creek, Blue Ridge, Fannett, Moore, Barbers Hill, Hankamer, Thompsons, Lochridge, Dyersdale, and Hull (old) crudes. Sun schedule for Barbers Hill, Batson old, Cotton Lake, Esperson below 35 gravity, Goose Creek, Greens Lake, Hull below 25, Humble below 35, Nome, North Dayton below 25, Orange, Saratoga, Sour Lake, South Liberty.

[8] Humble schedule for Anahuac, Angleton, Cedar Point, Fishers' Reef, Hull old and new, Pierce Junction, Red Fish Reef, Turtle Bay fields. Sun schedule for Anahuac, Caplen, and Turtle Bay. Gulf schedule for Anahuac, Hull new, Pierce Junction, Orange and Thompsons deep.

[9] Humble schedule for Dickinson, Gillock, Hardin, League City, and Rowan fields. Pan American Prod. Co. schedule for Gillock crude.

[10] Sun Oil Co. schedule for Bayou Blue, Chacahoula, Fausse Pointe, Hackberry (E. and W.), and Vinton. Texas Co. schedule for Bay St. Elaine, Caillou Island, Iberia, Lake Barre, Lake Pelto, Leesville and Port Barre for crude ranging in gravity up to 27-27.9; for lighter oils in those fields see Footnote 12. Gulf schedule for Edgerly, Starks, Vinton, E. Hackberry, Cameron Meadows, Leesville. Deduct 10 cents for Gulf's prices for Timbalier Bay, Grand Bay, Quarantine Bay, and West Bay. Deduct 2 cents for Standard of La. prices for University (Baton Rouge) crude of 30 to 35.9 gravity.

[11] Standard of La. schedule for Bayou Mallet, Bayou Sale, Choctaw, Darrow, Jeanerette, Lirette, N. Crowley, S. Crowley, Port Barre, Potash, Roanoke, St. Martinville. Deduct 10 cents for Anse La Butte.

[12] Texas Co. schedule for Bateman Lake, Dog Lake, Fausse Point, Horseshoe Bayou, Jefferson Island, Plumb Bob, Vermilion Bay, West Cote Blanche, and Delta Duck Club. Add 8 cents to these prices for Texas Co. postings for 28 or higher gravity at Bay St. Elaine, Caillou Island, Iberia, Lake Pelto, Leesville, Port Barre, and Lake Barre.

[13] Texas Co. schedule for Delta Farms, Golden Meadows, Lake Salvador. Also Standard of La. for Golden Meadows.

[14] Magnolia schedule for Lockport, Cameron Meadows, West Gueydan.

[15] Shell Oil Co. schedule at Iowa, Black Bayou, White Castle. For Shell's prices at Roanoke and Chalkley fields deduct 5 cents. For Shell's prices at Gibson, South Houma, Hester, and West Lake Verret fields deduct 10 cents.

[16] Sinclair-Wyoming Oil Co. prices at Salt Creek, Lost Soldier, Iron Creek, effective May 20, 1941. Deduct 10 cents for East Mahoney and deduct 20 cents for Mahoney and Werta.

MID-CONTINENT FLAT PRICES

FIELD—	Flat Price	Date Posted
Arkansas:		
Big Crk., Columbia, McKamie, Macedonia, Dorcheat, sour dist.	$1.25	2– 3–43
Dorcheat, Macedonia dist'l.	1.30	11–16–42
Smackover, Heavy	.83	5–22–41
Texarkana sweet distillate	1.40	–42
Louisiana, North:		
Cotton Valley Distillate	1.40	9– 1–41
Cotton Valley (Holloway sn.)	1.25	5–22–41
Lisbon Distillate	1.20	5–22–41
Urania	1.15	5–22–42
Louisiana, South:		
Erath	1.21	5–21–41
Garden Island	1.36	5–21–41
Happytown	1.15	5–20–41
Lafitte, Paradis	1.19	5–21–41
Lake Arthur & Tepetate	1.18	5–21–41
Lake Mongoulois	1.36	5–21–41
Ville Platte	1.30	5–22–43
Nebraska:		
Falls City, in field	.90	8– 1–41
Falls City, in tank cars	.95	8– 1–41
Shubert, in tank cars	.97	8– 1–41
Texas:		
Alice, Benavides (No. Sweden), Ben Bolt, Clark-Muil, Sun and Tom Graham	1.35	5–21–41
Cayuga	.90	5–21–41
Chapel Hill 50° and up	1.25	3–19–42
Chapel Hill below 50°	1.18	1–20–42
Clay Creek	1.00	5–22–41
Cleveland	1.26	5–21–41
Conroe	1.43	5–21–41
Esperson 35° & up; S. Esperson (Sun Oil)	1.30	5–22–41
East Texas, Flag Lake	1.25	5–20–41
Flour Bluff, East Flour Bluff, and La Rosa	1.33	5–21–41
Hockley-Cochran Counties	.87	5–21–41
Livingston, Cleveland	1.25	5–20–41
Long Lake	1.23	5–21–41
Luling	1.05	5–21–41
Lytton Springs	1.17	5–21–41
North Rincon	1.45	2– 3–43
Salt Flat, North Salt Flat, Darst Creek, Hilbig, Carroll, Clark, Zoboroski	1.14	5–21–41
Satsuma, Tomball	1.40	5–21–41
Sun Oil Co. at Batson (new), Fig Ridge, Hardin, Hull 25 and up, Humble 35 and up, LaBelle, N. Dayton 25 and up, Oyster Bayou, Seabreeze, S. China, W. Orange and Willow Slough	1.25	5–22–41
South Cotton Lake	1.35	5–22–41
Sun, N. Sun, N. Rincon, Garcia	1.35	5–22–41
Van	1.08	5–21–41
Yates (Deep)	.95	5–20–41
Yates (Shallow)	.82	5–20–41
Yturria (Sun in S. Texas)	....	....

MICHIGAN PRICES

Central (Basin):		
Porter, Greendale, Crystal, Wise, Midland, Vernon, Saginaw	$1.44	5–27–41
Buckeye, Edenville, Bentley, Beaverton, Monitor, Kawkawlin	1.42	5–27–41
Freeman, Lincoln, Sherman Redding, Temple, Winterfield, Trenton-Monroe Co., Fork Tws.-Mecosta Co.	1.39	5–27–41
Hamilton-Grout	1.29	5–27–41
Adams	1.27	6– 1–41
Arenac, Clayton, Ogemaw, W. Branch	1.24	5–27–41
Southwest (Shallow):		
Traverse, crude in Allegan, Kent, Ottawa, Van Buren Counties	1.45	6– 2–41
Clare	1.11	5–27–41

MIDDLE WEST PRICES

FIELD—	Flat Price	Date Posted
Lima, Ohio-Ind.	$1.50†	10–28–42
Illinois Basin (Sohio Corp.)	1.37	5–19–41
Lake Centralia-Salem, Illinois	1.37	5–19–41
Eastern Ill.-Western Ind.	1.22	5–21–41
Plymouth, Illinois	1.05	4–28–43
Western Kentucky	1.32	5–21–41
Birk City, Western Kentucky	1.32	5–21–41
Kentucky River, Eastern Ky.	1.43	6–19–41
Big Sandy River, Eastern Ky.	1.38	6–19–41
Cleveland, Lodi, Chatham, Ohio	1.30	9– 1–41

ROCKY MOUNTAIN STATES PRICES

Colorado:		
Canon City and Florence	$1.05	5–21–41
Iles	1.07	5–20–41
Montana:		
Cat Creek	1.15	4– 1–41
Cut Bank (6 Buyers)*	1.05-1.20	3–30–42
Dry Creek	1.02	5–20–41
Sunburst	1.00	5–20–41
New Mexico:		
Artesia	.94	5–21–41
Hogback	1.00	10–11–38
Wyoming:		
Big Muddy	1.08	5–30–41
Byron	.70	3– 4–43
Elk Basin	1.00	5–21–41
Elk Basin, Black	.90	4–28–43
Frannie, Light	.85	2–26–43
Frannie, Heavy	.62	2–26–43
Garland	.60	3– 4–43
Grass Creek, Light	1.00	5– 1–41
Grass Creek, Heavy	.65	4– 1–43
Hamilton Dome	.60	2–26–43
Lance Creek (Ohio Oil Co.)	1.12	7– 1–41
Mill Creek	.72	10–11–38
Oregon Basin	.65	3– 4–43
Osage	1.30	10–11–38
Poison Spider	.65	2–26–43
Rock River	1.15	5–21–41
Salt Creek, Tensleep Heavy	0.8285	2–27–43

*About 25% of Cut Bank crude brings $1.20 per barrel; 65% less than $1.20 and minimum $1.10; and 10% less than $1.10.

†$1.50-price applies to about ¾ of field's production; $1.60 to ¼ of it.

Wholesale Prices of Refined Products in Principal Markets

REFINED GASOLINE	Current Range (Cents a gal.)		Changes from Month Ago	
Oklahoma Refineries:				
40 Octane and Under	5⅛	5¼	...	...
43-46 Octane	5⅛	5⅜	...	...
72-74 Octane	5⅞	6	...	...
78 Octane, Ethyl	6¾	6⅞	...	...
Mid-Western Tank Car:				
40 Octane and Under	5⅛	5¼	...	...
43-46 Octane	5⅛	5⅜	...	...
72-74 Octane	5⅞	6	...	...
78 Octane, Ethyl	6¾	7⅛	...	...
New York Harbor:				
68-70 Octane	9¼	9¼	...	...
72-74 Octane	9¼	9⅜	...	...
Gulf Coast, Cargoes:				
60 Octane unleaded	5	5	...	...
65 Octane unleaded	5¼	5¼	...	...
68 Octane unleaded	5½	5⅝	...	...
70 Octane unleaded	5⅝	5¾	...	...
63-65 Octane leaded	...	...	...	...
72-74 Octane leaded	6¾	5¾	...	...
Min. 80 Octane leaded	6¼	6¾	+⅛	...
NATURAL GASOLINE				
Grade 26-70:				
F.O.B. Group 3	3⅞	3⅞	...	...
F.O.B. Br'kenr'ge, Tex.	3½	3½	...	...
KEROSINE				
Oklahoma Refineries:				
41-43 water white	4⅝	4½	...	...
42-44 water white	4½	4⅜	...	...
Mid-Western Tank Car:				
41-43 water white	4⅝	4⅝	...	...
42-44 water white	4½	4⅜	...	...
New York Harbor	7⅛	7⅛	...	...
†Gulf Coast:				
41-43 water white	4½	4½	...	...
42-44 water white	4½	4⅜	...	...
RANGE OIL				
At Oklahoma Refineries	4	4⅛	...	...
In Mid-Western Market Group 3, basis	4	4⅛	...	...
LIGHT FUEL OILS				
Oklahoma Refineries:				
No. 1 prime white	3⅞	3⅞	...	...
No. 1 straw	3⅞	4	...	...
No. 2 straw	3⅝	3⅝	...	...
No. 3	3½	3½	...	...
Mid-Western Tank Car:				
No. 1 prime white	3⅞	3⅞	...	...
No. 2 straw	3⅝	3⅝	...	...
No. 3	3½	3½	...	...
New York Harbor:				
No. 1	7⅛	7⅛	...	...
No. 2	6¾	6¾	...	...
No. 3	6¾	6¾	...	...
Gulf Coast, Cargoes:				
No. 2	3¾	3¾	...	...
DIESEL & GAS OILS (Cents per gallon, cargoes, according to Diesel index number)				
Gulf Coast:				
Below 43 diesel index	...	...	...	...
43-47 diesel index	4	4	+⅛	...
48-52 diesel index	4	4	...	...
53-57 diesel index	4⅛	4⅛	...	...
58 and above	4¼	4¼	...	...

HEAVY FUELS	Current Range (Per Bbl.)		Changes from Month Ago	
Oklahoma Refineries:				
No. 6	...	...	...	...
14-16 Gravity	$0.97	$0.97	...	...
Mid-Western Tank Car:				
No. 5	.85	.85	...	...
No. 6	.80	.80	...	...
New York Harbor:				
No. 5	1.95	2.01	...	...
No. 6	1.65	2.07	...	...
BUNKER C FUEL OIL (Per barrel, ships' bunkers)				
Gulf Coast	$0.85	$1.27	...	...
New York Harbor	1.65	2.07	...	...
DIESEL OIL, HEAVY (Per barrel, ships' bunkers)				
Gulf Coast, below 28 grav.	$1.35	$1.35	...	...
Gulf Coast 28 grav.	1.65	1.65	...	...
New York Harbor	2.78	2.78	...	...
LUBRICATING OIL (Cents a gallon)				
Oklahoma Refineries:				
Bright stock (viscosity at 210°):				
200 vis. D, 10-25 pour point	27	27	...	...
150-160 vis. D:				
0-10 pour point	23	23	...	...
10-25 pour point	22½	23	...	...
25-40 pour point	23	23	...	...
150-160 vis. E	22	22	...	...
120 vis. D, 0-10 pour point	22	22	...	...
Cylinder Stocks:				
600 s.r. dark green	8½	8½	...	...
600 s.r. olive green	10	11	...	...
631 s.r.	18½	18½	...	...
Neutral Oils (viscosity at 100°, 0-10 pour point):				
Pale Oils:				
60- 85 vis. No. 2 color	8	8	...	...
86-110 vis. No. 2 color	8½	8½	...	...
150 vis. No. 3 color	14½	14½	...	...
180 vis. No. 3 color	15	15	...	...
200 vis. No. 3 color	15	15	...	...
250 vis. No. 3 color	16	16½	...	...
280 vis. No. 3 color	17	17	...	...
300 vis. No. 3 color	18	18	...	...
Red Oils:				
180 vis. No. 5 color	15	15	...	...
200 vis. No. 5 color	15	15	...	...
280 vis. No. 5 color	...	...	...	...
300 vis. No. 5 color	17½	17½	...	...

LUBRICATING OIL (Cents a gal.)			Changes from Month Ago	
Western Pennsylvania: Cylinder Stocks:				
600 s.r. filtrable	15	15	...	...
650 s.r.	15½	15½	...	...
600 flash	16	16	...	...
630 flash	17	17	...	...
Bright Stock (No. 8 Color, 145-155 vis. at 210°, 540-550 fl.):				
10 pour test	30½	30½	...	...
15 pour test	29½	29½	...	...
25 pour test	25	25	...	...
Viscous Neutrals (No. 3 Color, vis. at 70°):				
200 vis. (180 at 100), 420-425 fl.:				
Zero pour test	31½	31½	...	...
10 pour test	30½	30½	...	...
15 pour test	29½	29½	...	...
25 pour test	25	28	+1	...
150 vis. (143 at 100), 400-405 fl.:				
Zero pour test	29½	29½	...	...
10 pour test	28½	28½	...	...
15 pour test	27½	27½	...	...
25 pour test	23	26	+1	...

EASTERN STATES CRUDE OIL PRICES

FIELD—	Flat Price	Date Posted
Bradford-Allegany	$3.00	3-26-42
Sw. Pa. Pipe Line	2.65	3-26-42
Eureka Pipe Line, W. Va.	2.59	3-26-42
Corning Grade, Ohio	1.31	5-27-41
Buckeye Crude Ohio	2.30	6-18-41

MAJOR CRUDE OIL PRICE CHANGES

	Penna. Grade	Mid-Cont. (36 Gr.)	Calif. (26 Gr.)
May 22, 1940	Cut 25	.....	.....
June 18, 1940	Cut 25	.....	.....
July 12, 1940	Cut 25	.....	.....
Aug. 28, 1940	Cut 15	.....	.....
Nov. 12, 1940	Up 15	.....	.....
Dec. 17, 1940	Up 15	.....	.....
Jan. 27, 1941	Up 15	.....	.....
April 1, 1941	.....	Up 5	.....
April 23, 1941	Up 10	.....	.....
May 19, 1941	.....	Up 10	.....
May 21, 1941	Up 15	.....	.....
June 18, 1941	Up 20	.....	.....
Aug. 14, 1941	Up 23	.....	.....
Aug. 25, 1941	Cut 23	.....	.....
March 26, 1942	Up 25	.....	.....
April 1, 1943	.....	.....	Up ‡25

‡ 14 and 15 gravity.

CRUDE OIL PRICES IN CALIFORNIA

Prices per barrel in field, posted by Standard Oil Company of California, effective May 25, 1943.
All gravities above those quoted take highest price offered in that field.

GRAVITY	Signal Hill (Long Beach)	Wilmington	El Segundo	Seal Beach	Huntington Beach	Inglewood	Olinda, Brea Canon	Athens-Rosecrans	Torrance	Richfield	Whittier, East Coyote (La Habra)	Montebello	West Coyote Hills	Santa Fe Springs	Newhall, Kern River, Kern Front, McKittrick, Round Mountain	Greeley, Canal, Wasco	Coles Levee	Mountain View	Elk Hills, Buena Vista Hills, Midway-Sunset, Lakeview Area	Lost Hills	Coalinga	Wheeler Ridge	Kettleman Hills	Elwood Terrace
12-12.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	$0.94	.....	.....	.....	$0.94	$0.94	$0.94	.....	.....	.....
13-13.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.96	.....	.....	.....	.96	.96	.96	.....	.....	.....
14-14.9	.....	$0.93	.....	.....	$0.96	.....	$0.95	.....	$0.95	$0.95	$0.95	$0.97	.....	.....	.98	.....	.....	.....	.98	.98	.98	.....	.....	.....
15-15.9	.....	.96	.....	.....	1.00	$1.01	.97	.....	.97	.96	.97	.97	.....	.....	*Playa	.....	.....	.....	.98	.98	.98	.....	.....	.....
16-16.9	.....	.96	$1.01	.....	1.00	1.01	.97	.....	.97	.96	.97	.97	.....	.....	del	.....	.....	.....	.98	.98	.98	.....	.....	.....
17-17.9	.....	.96	1.01	.....	1.00	1.01	.97	.....	.97	.96	.97	.97	.....	.....	Rey	.....	.....	.....	.98	.98	.98	.....	.....	.....
18-18.9	$0.93	.96	1.01	.....	1.00	1.01	.97	.....	.97	.96	.97	.97	.....	.....	.88	.....	.....	.....	.98	.98	.98	.....	.....	.....
19-19.9	.93	.96	1.01	.....	1.00	1.01	.97	.....	.97	.96	.97	.97	.....	.....	.88	.....	.....	$0.98	.98	.98	.98	.....	.....	.....
20-20.9	.93	.96	1.01	.....	1.00	1.01	.97	.....	.97	.96	.97	.97	.....	.....	.88	.....	.....	.98	.98	.98	.98	.....	.....	.....
21-21.9	.93	.96	1.01	.....	1.00	1.01	.97	.....	.97	.96	.97	.97	.....	.....	.88	.....	.....	.98	.98	.98	.98	.....	.....	.....
22-22.9	.96	.98	1.02	$0.88	1.00	1.01	.97	.....	.97	.96	.97	.97	.....	.....	.88	.....	.....	.98	.98	.98	.98	$0.95	.....	.....
23-23.9	1.00	1.02	1.05	.92	1.02	1.01	.98	.....	.97	.98	1.00	.97	.....	.....	.91	.....	.....	.98	.99	.98	.98	.95	.....	.....
24-24.9	1.03	1.06	1.07	.97	1.05	1.04	1.01	.....	1.01	1.02	1.03	.97	$0.99	.....	.95	.....	.....	.98	1.03	.99	.98	.95	.....	.....
25-25.9	1.07	1.09	1.10	1.01	1.08	1.07	1.04	.....	1.05	1.06	1.07	.98	1.02	.....	.99	.....	.....	.98	1.07	1.01	.98	.....	.....	.....
26-26.9	1.11	1.12	1.12	1.06	1.11	1.10	1.08	.....	1.09	1.10	1.11	1.01	1.06	.....	1.03	.....	.....	.98	1.11	1.04	.98	.....	.....	.....
27-27.9	1.15	1.15	1.15	1.10	1.14	1.14	1.11	.....	1.13	.....	1.15	1.05	1.10	$1.04	.....	.....	.....	1.01	1.15	1.07	.98	.....	.....	.....
28-28.9	1.18	1.18	1.17	1.15	1.17	1.17	1.14	.....	1.17	.....	.....	1.08	1.13	1.08	.....	.....	.....	1.04	1.19	1.10	1.00	.....	.....	.....
29-29.9	1.20	1.21	.....	1.19	1.20	1.20	.....	$1.17	.....	.....	.....	1.12	1.17	1.12	.....	.....	.....	1.07	1.24	1.13	1.02	.....	.....	.....
30-30.9	1.23	1.24	.....	.....	1.23	1.22	.....	1.21	.....	.....	.....	1.15	1.21	1.15	.....	$1.01	$1.09	1.10	1.28	1.16	1.04	.....	.....	FOB
31-31.9	.....	.....	.....	.....	.....	1.24	.....	1.25	.....	.....	.....	1.19	1.24	1.19	.....	1.04	1.12	1.14	.....	.....	1.06	.....	.....	Ship
32-32.9	.....	.....	.....	.....	.....	.....	.....	1.29	.....	.....	.....	1.23	1.28	1.23	.....	1.07	1.14	1.17	.....	.....	1.09	.....	.....	.....
33-33.9	.....	.....	.....	.....	.....	.....	.....	1.32	.....	.....	.....	1.27	.....	1.26	.....	1.10	1.17	.....	.....	.....	1.11	.....	.....	$1.22
34-34.9	.....	.....	.....	.....	.....	.....	.....	1.36	.....	.....	.....	1.31	.....	1.30	.....	1.13	1.20	.....	.....	.....	1.13	.....	.....	1.25
35-35.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.35	.....	.....	.....	1.16	1.22	.....	.....	.....	.....	.....	$1.23	1.28
36-36.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.39	.....	.....	.....	1.19	1.25	.....	.....	.....	.....	.....	1.26	.....
37-37.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.43	.....	.....	.....	1.22	.....	.....	.....	.....	.....	.....	1.29	.....
38-38.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.47	.....	.....	.....	1.25	.....	.....	.....	.....	.....	.....	.....	.....
39-39.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.51	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
40-40.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.53	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

* Effective April 1, 1943, posted by Union Oil Company of California.

Oil Properties in Far East Are Largely Demolished Except Refinery at Pladjoe

With the exception of a small part of its Pladjoe refinery, practically all properties of the Royal Dutch-Shell group of companies in the Far East were destroyed in advance of the Japanese invasion in March, 1942, it is revealed in some detail in the concern's annual report for 1942. These properties which were rendered useless included production, refining, and storage facilities in the Netherlands East Indies, British North Borneo, Sarawak, and Malaya.

By the middle of March, 1942, the enemy had occupied the greater part of the Netherlands East Indies and the British possessions in the Far East. From reliable reports and eye-witness accounts, there is available now a detailed picture which tells the extensiveness of destruction of the oil fields, refineries, and other installations in these territories.

In the N.E.I. the Group possessed four refinery centers, which were all situated in the neighborhood of important oil fields. Also, the Group had many oil fields in exploitation in various parts of the N.E.I. where no refineries were situated.

In Sarawak and Brunei the Group owned two oil fields and one refinery center, and in Malaya the Group had important storage installations.

Before the war in the Far East broke out, detailed plans for destruction in the shortest possible time of the Group's refineries and oil fields in the N.E.I. had been prepared by the military authorities, and similar plans had been made for the Group's properties in British territories. When the Japanese moved forward, and the installations were threatened, the planned demolition was carried out on the instructions of and by the military authorities.

It is known that all of the oil fields were completely wrecked, approximately 3000 wells rendered useless to the enemy in some way or other. Drilling equipment and machinery in the fields were destroyed.

Three of the four refinery centers in the N.E.I. were completely destroyed. In the fourth refinery, at Pladjoe, Japanese paratroops were dropped in the middle of the refinery center. Consequently, it was not possible to accomplish destruction of the refinery as planned. However, the central power plant, furnaces of the cracking plant, and the central boiler plant were rendered useless, while the jetties were partly destroyed. Afterwards, the installations were shelled with mortars, and finally were bombed several times by Netherlands Indian bombers. It has been reported that among other parts of the installations, the alkylation plant was destroyed by these attacks.

In Sarawak, the Group's refinery was completely destroyed.

In the neighborhood of Singapore, important storage installations of the Group were almost entirely destroyed.

In connection with the destruction of the refineries and installations, there were destroyed also the stocks of oil in the tanks, material stores, and the auxiliary installations, such as work shops, store houses, and all records, documents, and other papers.

Having this definite information on the destruction, the Royal Dutch-Shell Group is actively planning for reconstruction of the properties. The concern recognizes, according to the report, that very substantial sums of money will be needed to reconstruct all that has been lost. But the Group has consistently followed a conservative policy with regard to the creation of reserves generally, and it points out now that this policy has been abundantly justified and has enhanced the stability of the Group during the difficult war years.

Canada Is Financing Surveys by Geologists

Resources Minister Crear has told the Canadian House of Commons that the dominion government of Canada had not spent "a dollar" on the development of oil wells at Fort Norman or on the pipe line to Whitehorse and other Alaskan points.

The development at Fort Norman was initiated by the United States government to provide petroleum products for war operations in Alaska, with Imperial Oil Company of Canada doing the drilling and producing.

The discussion arose during consideration in committee of the $1,755,000 mines and resources item in the war appropriation for the current fiscal year.

Crear said all the Canadian government had done to further the development was to give Imperial Oil Company permits to drill in certain areas. The drilling brought results which justified the big production and pipe-line project recently announced. He said the government had discouraged applicants for permits from purely speculative prospectors.

P. E. Wright, member of parliament, said it appeared that the government had placed in the hands of one big company a natural resource which might prove of great commercial value.

Crear said there was an agreement, described to the House of Commons earlier in the session by Prime Minister Mackenzie King, safeguarding Canada's rights in the development when the war emergency ends.

There was one item of $500,000 for the expenses of geological parties searching for new petroleum sources. About 10 parties were active in Northwest Alberta and Eastern British Columbia, said the minister. One party was even working in Saskatchewan.

For the first time in the years of geological surveys, the dominion government was spending money for the use of seismograph equipment in the search for oil.

In reply to a question from D. King Hazen, another member of the House, Crear said that surveys of oil shale deposits were included in the vote. Last year these studies cost $42,000, of which 25 percent was spent in New Brunswick. The items were still under consideration when the House adjournment was reached.

Good Well Is Completed In Turner Valley Field

British Dominion Oil & Development Company's No. 5, new North Turner Valley well, may receive an allowance approaching 1000 barrels daily, according to reports from Calgary, Alberta. This is the production allocated by the government based on oil-gas ratio and production. The company will drill No. 6 a quarter of a mile east of No. 5 and No. 7 a quarter of a mile north of No. 5. A neighboring well has comparatively low production. It is expected these will be drilled on the basis of 50 percent of costs and production for British Dominion Oil & Development Company and 50 percent for Home Oil Company.

Deca 2, first well in a series to be drilled in the Athabasca Sands, is being tested this week by East Crest Oils and Davies Petroleum Company. Its backers hope they have discovered a new shallow field.

In the Taber field near Lethbridge, Taber-Providence 3, owned by Dominion Oils, is being tested. Its early promise was for 200 barrels a day.

The Taber area has a series of good wells and dry ones, and its whole surface is being tested by many companies.

Taber, Vermilion, Ram River and Athabasca are comparatively shallow areas with low drilling costs against those of Turner Valley. Their output is also smaller, and in some cases will be marginal if oil prices drop considerably after the war.

At present Turner Valley production is up about one third from 1940.

Prolific Well Completed in Turner Valley North End

Northern end of the rich Turner Valley oil field, Alberta, whipped into the spotlight recently when British Dominion No. 3 well blew into production. On Friday, July 16, this well was reported flowing at the rate of 4800 barrels of crude oil daily, and gave promise of being one of the largest producing wells in Turner Valley.

Production tests of the lower porous limestone zone showed a yield of 130 to 150 barrels, while the upper porous zone produced at the rate of between 55 and 60 barrels hourly. The well was shut down temporarily because of a lack of storage on the lease. The structure is narrow at the spot where the new producer was drilled and the few available sites are owned by British Dominion and Home Oil. A year ago drilling in that section of the Valley was stopped. Now it will be revived.

In May, Turner Valley production slumped to a record low but if the new producer is put on production, it will bring up July figures. June figures are not yet available. In May, Alberta oil

HAVE YOU

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for the Materials You Produce?

(And it IS being specified even more widely than in World War I)

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- Our complete processing facilities are available to sub-contract your requirements.
- Our years of experience with Ordnance Department Specifications qualify us to co-operate in your program.
- Quotations on work to be done in our plant will be furnished promptly.
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Licensed Processor for PARKER RUST-PROOF CO.

Parkerizing

is a chemical treatment for iron or steel, resulting in a surface that can be stained, oiled, waxed or painted and is substantially resistant to rust.

Bonderizing

is a chemical treatment for iron, steel or zinc that insures cohesion of applied coatings of paint, enamel or lacquer, resulting in longer lived, rust-resistant finish.

Parco Lubrizing

is a chemical treatment for iron or steel friction surfaces, in mechanical assemblies, that improves bearing properties, retards wear and galling.

production totaled 843,431 barrels, daily production for the month averaging slightly over 27,000 barrels. Outside of Turner Valley the production was small: Red Coulee, 690 barrels; Vermilion, 2481 barrels; Wainwright, 1728 barrels; Del Bonita, 124 barrels from one well, and Taber II, 212 barrels, two wells.

Shell Oil has entered the Southern Alberta great plains area and has filed on more than 50,000 acres for exploratory work. This is the latest major to enter the Alberta plains area. The filing of this large block of acreage is part of the company's exploratory program in Alberta, Montana and Wyoming. Shell has three Alberta wells drilling, its Jumping Pound test being the deepest one active in Alberta at the present time. It is below 10,624 feet.

Canadian oil operators read with interest the recent announcement in Ottawa that the operations of Canoil Limited, a subsidiary of the Canadian National Railways, will not compete with the private oil industry. The company is actively engaged in Vermilion seeking a supply of low grade oil for the C.N.R. The government is seeking $600,000 from parliament for this program. The Vermilion crude is obtained at a shallow depth and can be burned in locomotives as it comes from the ground.

The Devonian test well in Turner Valley, a joint undertaking by Turner Valley operators, has settled down to a 200-barrel production basis. This well, designed to tap for the first time the Devonian formation in the Valley, encountered a fault, and the well was plugged back to the Madison and put on production.

Mexican Oil Chief Ends Trip Seeking U. S. Aid

Reports from Mexico City state that Efrain Buenrostro, managing director of Pemex, government oil company, was due back in that place in late July from his long mission in the United States, where he came to seek a 50,000,000 pesos credit for the industry.

It is indicated, according to the reports, that Buenrostro did succeed in obtaining a substantial credit for machinery and equipment badly needed in several oil districts, particularly the Poza Rica field. He came to the United States over 4 months ago. In the meantime, he conferred with government and business officials in Washington, New York, and Chicago.

One of the matters said to have been discussed by the oil chief on his trip was the plan for building a pipe line from the Gulf Coast to Mexico City.

Producer Gas Units Being Manufactured in India

There are now 10,000 civilian motor vehicles being run on producer gas in India, and about the same number more are due to be converted.

Plants for the manufacture of producer gas now are being made by 55 companies.

Australia Is Substituting Charcoal for Motor Fuel

In reflection of the comparatively large use of producer gas for propelling motor vehicles, charcoal now is being produced in Australia on a large scale.

Government owned kilns have been established at various places in the Commonwealth.

U. S. Field Operations

Illinois Basin

Another Wayne County Wildcat Productive

First National Petroleum Trust's E. Myers 1, NE NW NW 11-1n-14w, Edwards County, has been completed with an initial test of 961 barrels of oil in 24 hours. The well, which opens the Lancaster West pool, is producing from the Lower O'Hara lime at 2,857-65 feet, following a 2000-gallon acid treatment.

Another wildcat, Midstates Oil Company's Coad 1, NW NW NW 13-3s-10e, has been completed with an initial of 15 barrels of oil and 22 barrels of water in 24 hours from Biehl sand at 1,977-84 feet, after a 10-quart shot. It extends the Grayville pool west.

Mabee Oil & Gas Company's Cowling 1, SW NE SW 20-2-s-14w, another discovery, still was testing after the hole filled with oil at the rate of 400 feet an hour when plug was drilled to Aux Vases at 3002-47 feet.

Wayne County: H. H. Weinert's McConnell 1, ne nw 27-1s-8e, has been completed as the discovery well of the Mt. Erie South pool. It pumped 88 barrels of oil in 24 hours from Aux Vases sand at 3075-95 feet after a 20-quart shot.

Wabash County: Shell Oil Company's Thrapp 1, sw sw nw 29-1n-12w, was testing after an acid treatment of 1000 gallons in Rosiclare at 2326-36 and McClosky at 2358-62 and 2372-76 feet. After plug was drilled the well flowed 155 barrels of oil in 11 hours and later it swabbed 100 barrels of oil and 62 barrels of water in 8 hours. Plugged back to 2370 feet and acidized, it made only acid water and a small amount of oil.

Jefferson County: Magnolia Petroleum Company's Badgett 1, SW NE NE 18-3s-3e, swabbed 21 barrels of oil and 18 barrels of water in 12 hours after the swab was recovered from the hole. The well is producing from the Aux Vases sand at 2693 feet. It is 2½ miles northwest of the King Pool.

Kentucky

Carter Oil Company's Russelberg 2, SE SW SE 24-P-21, three miles north of Waverly, in Union County, flowed clean oil in 39 minutes from McClosky at 2576-80 feet on drill-stem test, first indication of McClosky commercial saturation in this area, which has production from the Waltersburg sand. In one-hour drill-stem test on lower McClosky at 2592-2603 feet recovery showed 2310 feet of salt water and no oil. Casing was set for test at 2603 feet. Starting at surface elevation of 400 feet, Glen Dean was topped at 1942 feet.

Kingwood Oil Company's Lilly 1, NW NW NW 21-O-19, is a new wildcat location ¼ miles southwest of Morganfield.

Trans-Tex Oil Company's T. N. Wheatley 1, NE NE 14-O-21, wildcat ½ mile north of Waverly, was making drill-stem test of Cypress saturation at 2296-2300 feet, which would be a new pay for this area.

Sinclair Prairie Oil Company's Noah Hunter 1, NE NW NE 3-O-18, wildcat 4 miles west of Uniontown, was drilling at 2125 feet. From elevation of 349 feet, Menard was topped at 1807.

Daviess County: Shaw-Kerns Syndicate's Breck Bates 1, SW NW NW 8-N-28, ¼ mile east of Panther, is a new wildcat start drilling with cable tools at 380 feet.

M. P. Evans and Sohio Producing Corporation's Sam Ewing 2, NW SE SE 1-P-28, 3½ miles east of Stanley, abandoned at 1856 feet.

Henderson County: Cherry & Kidd's Smith 1, SW SW 25-R-26, wildcat 2 miles south of Newburgh, Indiana, abandoned at 2250 feet. Starting at surface elevation of 377 feet, Glen Dean was topped at 1544 feet.

Webster County: B. B. Hamilton's Sellers 1, C SE NW 14-N-24, wildcat 2½ miles northwest of Sebree, put on pump after making 12 barrels of oil an hour swabbing, following squeeze job on Tar Springs sand saturation at 1872-92 feet.

Kansas

Barber County Wildcat Testing Porous Limestone

Pryor and Lockhart's Massey 1, C SE NE 27-30s-15w in the Sun City area of Barber County is preparing to test saturation encountered in porous limestone. The well, a wildcat, found the Viola lime dry after drilling to 4523 feet. The test of saturation higher in the hole will be made through perforations.

Marion County: Wolf Creek Oil Company and Falcon Seaboard Drilling Company are drilling ahead at Duerkson 1, C WL NE NE 29-19s-1e, after a disappointing test of chat topped at 2811 feet. The test showed 2000 feet of fluid of which 200 feet was oil. Located three miles from production in McPherson County, the well at last reports was drilling below 3000 feet.

Barton County: Lauck and Moncreif's semi-wildcat Grosshardt 2, NE NW 16-17s-11w, in the Kraft-Prusa area, has been completed for 384 barrels of oil daily from the Arbuckle lime at 3281-97 feet. The well is making 3 percent water.

Meanwhile four wildcats in the county have been abandoned as dry. They are Vernon Alpine and Brumson's Hutchman 1, C S½ SE NE 28-16s-12w, Herbert Gussman's Ruscoe 1, NWc 16-19s-12w, National Refining Company's Panne 1, NE NW NE 35-19s-13w and Transwestern's Deckert 1, SE NE SW 16-20s-15w.

McPherson County: Westgate-Greenland Oil Company has given the Crowther pool a slight eastern extension with Sandberg 1, C S¼ NE SW 26-17s-1w. Chat was topped at 2794 feet and with the hole bottomed at 2810½ feet, the well was standing nearly full of oil. On a natural potential test production was estimated at 107 barrels daily.

The same company is ready to test chat at Johnson 1, C S½ SW NW 4-18s-1w, two miles southeast of the South Roxbury pool. Saturation was encountered at 3732-40 feet and cable tools were moved in to test.

Oklahoma

Viola Lime Pool Opened in Pottawatomie County

A new Viola lime pool has been opened in Pottawatomie county by Atlantic Refining Company and J. E. Crosbie Inc.'s Chilcoat 1, SE NW SE 10-9n-4e, which flowed 40 barrels of oil in one and a half hours after 1000 gallons of acid had been applied. When a show in the Wilcox sand proved disappointing, the Viola was tested through perforations between 4508-14 feet, and the well is still testing.

Oklahoma County: Magnolia Petroleum Company has the second well in the new West Edmond pool, near completion. Ringer 1, C SE SE 31-14n-4w, flowed 217 barrels of oil from the Hunton lime in 10½ hours through tubing and was still showing some mud and drilling water. Production is from pay at 6987-90 feet.

The third producer for the new pool apparently will be Denver Producing and Refining Company's J. M. Young 1, NW SE NW 32-14n-4w, northeast of the discovery well. The Hunton pay zone was topped at 6835 feet.

Hughes County: Deep Rock Oil Corporation has brought in its third producer in the new Hughes County field. The latest producer is Lankford 1, NE SE NE 29-7n-10e, which made 42 barrels of oil in 45 minutes after the plug was drilled and the hole was bailed. Lankford 1, is south of the discovery, and has been shut in for pipe line connection. Bottomed at 3389 feet, the well is producing from the Cromwell sand.

Comanche County: Northern Ordnance Inc. which has carried on a heavy wildcatting program since it entered the oil producing business several months ago, has a new shallow depth test underway south of the Ft. Sill Reservation pool. The well, Spencer 1, NW SW SE 21-3n-10w is about one and three-quarters miles south of production. The operator is looking for Pontotoc pay expected near 1500 feet.

Garvin County: Stanolind Oil and Gas Company's Cashion Community 1, NW NE SW 31-4n-1e, which extended the Pauls Valley pool south with Pennsylvania sand production, has established a potential of 2000 barrels daily. Phillips Petroleum Company and Pure Oil Company have started tests in the area as a result of the Stanolind strike.

Caddo County: Ray Stephens Incorporated has started work at Gulf 1, C SW SE 21-7n-9w, east of Anadarko, for a test scheduled for 8000 feet. Well is located on a block of approximately 8000 acres. Gulf Oil Corporation holds a large block of leases in the area, acquired several years ago after siesmograph survey.

Okfuskee County: Sunray Oil Company's Edwards 1, NEc NW 24-12n-8e found the Cromwell sand saturation disappointing in comparison with that encountered in Midco Oil Corporation's discovery, Community 1, NE NW NE 24-12n-8e, and is now drilling ahead to the Hunton lime.

West Texas

Ordovician Tests Draw Attention in North Basin

Ordovician prospects nearing decisive levels are commanding the greatest attention among the large number of wildcats underway in West Texas. Exploratory work is being expanded each week, and tests are being assigned to many of the sparsely tested counties between the Permian Basin and the Texas Panhandle.

Gaines County: Stanolind Oil & Gas Company's American Warehouse Company 15, Cedar Lake field, entered brown dolomite at 10,790-10,805 feet and prepared to core. It has logged more than 500 feet of Pennsylvanian, and is possibly entering the Ordovician series. Amerada Petroleum Corporation's Robertson 6, east edge of Seminole field, is drilling dry lime at 8715 feet without shows on Clear Fork objective. Continental Oil Company's Jones 1-A, 8½ miles southwest of the Wasson field, is drilling lime at 6015 feet.

Hale County: Amerada Petroleum Corporation's Kurfees 1, 10 miles southeast of Plainview, is fishing at 6673 feet in shale, probably upper Pennsylvanian. The San Andres was topped at 2440 feet and the San Angelo at 3730 feet with elevation of 3308 feet.

Upton County: Texas Pacific Coal & Oil Company's Lane 52-A, the first Ordovician project for the McCamey field, entered the Wolfcamp, Basal Permian, at 5832 feet with an elevation of 2589 feet, and is drilling hard lime at 5987 feet. It is 14½ miles east of Ordovician failures in Crane County.

Pecos County: Standard Oil Company of Texas' Smith-Douglas 1, southwest edge of Yates field, was swabbing and flowing 30 barrels oil and equal volume of acid residue while cleaning out after acidizing with 5000 gallons through perforations at 8697-8733 feet in the Basal Simpson after testing water in the Ellenburger. It is expected to make a small producer. Phillips Petroleum Company's Price 1, wildcat, was coring 11,943 feet in the Ordovician, with production indicated from the upper section.

Yoakum County: Stanolind Oil & Gas Company continues to add to its crude reserves in the upper basin to fortify its recently authorized 16-inch pipe line outlet. Latest acquisition involves payment of $950,000 cash for Don Danvers et al's Allen, Anderson and Willard leases, involving 760 acres with 19 wells rated at 15,410 barrels potential and base allowable of 632 barrels daily. The acreage is drilled up, and one 80-acre lease is a farmout by the British-American Oil Company, which retained deep rights.

East Basin: Ordovician prospecting is expanding to the east portion of the Permian Basin. In Dawson County, Gulf Oil Corporation's Dean 1, projected 9500-foot test on 24,966-acre lease, is drilling dry lime at 4760 feet. Seaboard Oil Company and Phillips Petroleum Company have scheduled an Ellenburger test near T&P 36, Block 34, T-5-N. In Borden County, Northern Ordnance, Inc., has assumed an Ellenburger contract in acquiring a big block out of the Clayton-Johnson ranch.

Howard County: B. C. Mann and associates purchased 17,000 acres in Block A, Bauer-Cockrell Survey, and T&P Blocks 33, T-1-S, and 34, T-1-N and T-1-S, to drill three wildcats to the San Andres, then if structural conditions warrant an Ordovician project will follow.

Andrews County: Union Oil Company's Biles 1, 4½ miles northwest of the Fullerton field, was idle for repairs at 7029 feet after recovering 100 feet of mud without shows when a tester was used in a porous zone at 6945-7005 feet. It has not reached equivalent of the lower pay of the Fullerton field. The comparatively high structural position of this wildcat is partially due to normal rise from Fullerton field.

Prospects: Ten wildcats authorized the past week, included deepening projects in Brewster and Mitchell counties. In Crosby County, Rodgers Bros. Drilling Company et al's Belding 1, C NW NE W.C.Ry. 4, Block 4, was moving in materials. Pure Oil Company has unloaded pipe for its Floyd County test to be on or near BS&F Ry. 7, Block 7. Texas Pacific Coal & Oil Company is starting a San Andres test near the west edge of Terry County on a northeast strike from the Waples-Platter and Ownby pools.

West Central Texas

Stephens County Wildcat Completed as Gas Well

Carey & Carey's Cretsinger 1, ⅜-mile north by west of the Shaw-Whalen gas discovery in northeastern Stephens County, was rated at above 15,000,000 feet natural gas from Marble Falls sand perforations at 4075-78 feet. Well is bottomed in black lime at 4150 feet. Ben F. Read, trustee's Corbett 2, situated 1½ miles to south and west offset to an oil discovery that may be on same structure as above gasser, drilled through broken oil pay to 4175 feet in Marble Falls, topped at 3919 feet, and will set pipe, while Corbett 3 logged oil pay at 4080-94 feet, then halted at 4140 feet to run pipe.

Palo Pinto County: W. K. Gordon et al's Conway 1-A, T&P 59, Block 2, semi-wildcat, completed as 834,000-foot gasser on natural test from sand at 3969-73 feet.

North Texas

Prolific Discovery Indicated In Southwest Young County

Southwestern Young County scored prolific discovery from the Marble Falls lime when Anderson-Prichard Oil Corporation and Col-Tex Refining Company's Donnell 1, Margaret Edmonds Survey and two miles southeast of Murray community, flowed 45 barrels of oil on 10-minute test through 1-inch choke, then averaged 4½ barrels hourly for 12 hours on ¼-inch with 1800 pounds closed in casing pressure. Two-stage acid treatment with 2000 gallons was made through perforations at 4577-98 feet. The discovery logged oil pay in the Marble Falls at 4184-98 feet and saturation in the Mississippian at 4577-80 feet in drilling to 4768 feet, then set pipe at 4629 feet. The well is on a 1046-acre lease. Sinclair Refining Company will provide a pipe line connection.

Montague County: Stanolind Oil & Gas Company's Reed 1, 3½ miles west of Nocona and on a separate structure from Rogers & Rogers field, was showing a small amount oil while unloading after acidizing with 1000 gallons through perforations at 5740-60 feet in the Simpson, topped at 5721 feet.

Cooke County: Sinclair Prairie Oil Company's M. B. Harrison 2, 1500 feet south of the most easterly producer in Walnut Bend field, is running pipe after recovering 5000 feet of oil and 100 feet of mud when tester was used at 5481-5555 feet in Winger sand, topped at 5476 feet, or 9 feet low. Productive limits of this unusually thick sand on the east and northeast flanks of the structure are not determined. Sun Oil Company's Snuggs 1-B, south edge of field was abandoned in the Simpson at 5477-5601 feet.

Archer County: Perry Browning's Fee 3, near the center of the north line of block 89, established first Strawn production for Browning-Ellenburger pool, situated between the Asylum and Vogtsberger areas, in flowing 69 barrels of oil on a 2-hour test through ¾-inch after a 160-quart nitro shot at 4934-78 feet. S. D. Johnson et al's Coleman 1, wildcat and 3 miles north by east of Scotland, filled 500 feet with oil after recovering acid load used at 5697-5716 feet in the Bend, topped at 5466 feet. It is bottomed in shale at 6013 feet, and may qualify as a pumper. L. T. Burns et al's Ickert 14, wildcat near Young County line, failed to make a producer after acidizing the Mississippian saturation at 5080-5110 feet, and will re-perforate opposite the Bend saturation at 4453-65 feet. Dillard et al's McCory-Wilson 1-J, wildcat was abandoned in the Ellenburger at 5451-5617 feet.

Wichita County: Production tests are underway on wildcats to the south and northwest of Wichita Falls that recently opened new Strawn pools. Continental Oil Company's West 1 flowed accumulated head of 65 barrels of oil in 9 hours through 12/64-inch, then flowed 34 barrels during same period after being closed in for 12 hours. Production is from broken sand at 4245-58 feet. Consolidated Oil Company's Laukhuf 1 flowed a head of 75 barrels, then recovered 112 barrels in an 8-hour swabbing test. Perforations at 4415-32 and 4440-65 feet were treated with 1000 gallons of acid. Both wildcats were rated at 100 to 150 barrels daily, and were drilled to Ellenburger.

Clay County: L. T. Burns et al's Thompson 1, 2 miles west by north of the single Mississippian well in Buffalo Springs pool, confirmed earlier prospects of opening a new pool in flowing 150 barrels of oil natural on a 3-hour test through ¼-inch from saturation at 6010-44 feet in the Mississippian, topped at 5972 feet. A steady development campaign has been scheduled by Burns and associates.

Mexican Strikes Averted; Case to Be Arbitrated

Threatened strikes by workers of the southern Veracruz oil fields, in protest against alleged violations of their contracts by Pemex, the government oil company, have been averted through action of the Labor Ministry. The case will be arbitrated.

One of the objections raised by the workers was the refusal of Pemex to pay time and a half per day work away from the employes' home regions.

East Texas

Expansion of Quitman Field Is in Prospect

Expansion of the Quitman field, Wood County, to the southwest was in prospect when Roger Lacy et al moved in pipe to test Cox 1, James Barfield Survey and 4500 feet from production, after having logged Paluxy sand saturation in coring to 6335 feet.

Lacy et al's Rape-Johnson 1, northeast outpost, was drilling in lime at 6205 feet. Amerada-Gulf's White 3, inside location, flowed 188 barrels in two hours on half-inch choke, then tested 726 barrels potential on quarter-inch. Production was from perforations opposite solid sand at 6280-6360 feet.

Oak Grove: Jackson-Fisher and Field's Quitman National Bank 1, 1½ miles east of original test, logged top of Austin at 4870 feet, 137 feet low, and was drilling chalk at 4900 feet. Partnership's McCarley 1 lost more junk in hole while trying to plug back for completion in Woodbine, and may skid rig.

In south end of Wood County, Superior Oil Company and Dick Andrade's Carlisle-Farris 1 was abandoned in Woodbine water sand 7545-7695 feet.

Wildcats: Humble Oil & Refining Company's Wright 1, Morris County, tested salt water in Basal Trinity sand at 7513 feet, and was drilling at 7660 feet.

Roger Lacy et al's Paul 1, southeast edge of Fruitvale, Van Zandt County, checking structurally high on chalk markers, was idle for repairs at 3790 feet.

In Hopkins County, Grelling et al's Blalock 1 entered Pecan Chalk at 2389 feet with elevation of 520 feet, and was drilling at 2460 feet.

Kaufman County: Sun Oil Company's Rutledge 1, Smackover project, encountered first anhydrite flakes in Buckner between 9100-9140 feet, and was drilling sand at 9219 feet with the Smackover due within next 500 feet.

Hunt County: Stanolind Oil & Gas Company's Caston 1, northeast offset to its Campbell pool discovery pumper, plugged back from 4800 feet to 3000 feet to attempt directional drilling. Original hole cut fault 4510 feet, entering Paluxy water sand. Sufficient information is now available for a sidetracked hole to enter Paluxy pay on upthrow side of fault.

Stewart and Dalton's Rollins 1, 3 miles northeast Campbell, was drilling at 3720 feet in Georgetown, topped at 3345 feet.

Ohio Oil Company's Langford 1-A, 3½ miles southeast of Cash, was abandoned in Paluxy water sand at 4355-4481 feet.

Commission Regulates Talco Salt Water Injection

A new order issued by the Texas Railroad Commission, last week, provides for a salt water injection program in the Talco field, Franklin and Titus counties. The order authorizes operators to close in wells producing 100 barrels of salt water or more, and permits the production of the allowable of the closed in well from some other well on the same lease.

The allowable transferred may not be produced by a well which is producing more than 25 percent water. The allowable for wells shut in must be distributed ratably to maintain producing wells on the lease.

Wells closed in must be tested every six months and if they still produce 100 barrels of water they may be closed in again. Provision is made for filling the hole closed in with mud or dead oil sufficient to exert a hydrostatic head equivalent to the pressure at the bottom of the hole.

Southwest Texas

Willimar Looms as Major Oil Producing Area

Apparently the most important extension to any field in the Southwest sector is in the making in Willacy County where a wildcat two miles south of the Willimar field has set pipe after recovering considerable oil on a drill stem test. The field, producing limits of which have not yet been limited, has been developed slowly and now measures 2¼ miles east and west and with the extension is more than three miles north and south. It is now apparent that the pool is developing into a major area with the pay sand blanketed over the entire area.

The new extension is Cavazos 1, drilled by Baldridge and King to 7959 feet. A drill stem test was made for 20 minutes duration at 7929-59 feet and the recovery was 1000 feet of water cushion and 1650 feet of oil. The pay section is in the Frio series, topped around 7848 feet in the high part of the field but fans out to around 7900 feet around the edges.

Location of the new discovery is 467 feet out of the northwest corner of lot 3, block D of S. Garcia subdivision of share 12, San Juan de Carricitos grant, seven miles southeast of Willamar townsite. It is on a J. E. Douglas farmout and was supported by Standard of Texas and Pan American Production Company.

As a whole Willacy County has been classified in the "cold" area for oil exploration until recent months when several companies have conducted extensive geophysical operations in the area. Considerable acreage has been leased in many instances, and presently Sinclair Prairie Oil Company will drill a deep wildcat one mile east of Raymondville. Other deep tests are expected to be started this year.

Wilcox Trend: Leasing and drilling along the Wilcox trend is also the "big play" in many sectors. This so-called trend is being worked extensively with all known methods from LaSalle County to the Louisiana border. It was stimulated recently with the discovery of Carrizo-Wilcox production in Karnes County, while other deep Wilcox wells are showing for production. This Wilcox development is exceptionally active in Bee, Live Oak, DeWitt and Lavaca counties. More deep wildcats are scheduled to be drilled in this area soon, following up the exploration and leasing campaigns.

Producer: Continental Oil Company has completed the second well in the Slick-Wilcox field of DeWitt County. The test is Wood 2 and it flowed 258 barrels per day through 5/32-inch choke from perforations at 7618-24 feet. Total depth is 7625 feet with the first Carrizo sand logged at 7469 feet, gas-distillate at 7469-7500 feet and the second Carrizo at 7538-77 feet. The Pettus was topped at 4260 feet. This field is the best so far discovered in the Wilcox this year. It is located 1604 feet northwest of the discovery producer.

Discovery: Mackhank Petroleum Company of Houston has opened a distillate field from the Wilcox section near the old shallow Cosden field in northern Bee County. The company drilled Freeland 1 to 7517 feet and set 5½-inch casing on bottom. Perforations were made at 7390-98 feet in the Wilcox and on a six-minute drill stem test the well recovered five joints of distillate and one joint of mud. The tubing was cemented and the well came in with 2500 pounds pressure on tubing and 2300 pounds on casing.

This discovery is three miles southeast of the South Caesar deep field and three miles southwest of North Pettus-Wilcox field, both of which produce from the Wilcox series. The new discovery is 495 feet out of the east corner of a 350-acre lease in east corner of John Pace survey.

Rules for New Manziel Field Issued by Commission

Rules for the new Manziel field, Wood County, were issued by the Texas Railroad Commission last week. Wells may be located 467 feet from property lines and 990 feet from the nearest well producing from the same horizon.

The field is to be divided into 40 acre units and the allowable assigned on acreage per well with 50 percent allocated on each factor.

Proration units for gas wells may include 640 acres.

Stowell Field Proration Rules Revised by Commission

Rules for the Stowell field, Jefferson County, have been revised by the Texas Railroad Commission to permit the location of wells 330 feet from lease lines and 990 feet apart. These rules formerly required 1320 feet between wells.

Hurricane Damages Coastal Oil Fields

Winds striking with speeds up to 132 miles per hour toppled scores of derricks, damaged pumping units, refinery towers, and power lines, causing a shutdown of several refineries on the upper Texas Gulf Coast July 27. The damage from the storm to the oil industry is estimated at hundreds of thousands of dollars.

Probably the greatest damage to the producing branch of the industry was in fields where derrick were still standing over pumping units. Many of these steel structures were flattened, thus preventing the pumping of needed oil. In some instances pumping units were damaged or power lines were blown down.

Several refineries in the Houston-Baytown-Texas City area may be closed down for several days, the main damage being to cooling towers and power lines. Other plants are operating at reduced capacity.

The storm swept inland over Galveston, Chambers, Brazoria, Harris and Liberty counties.

Texas Gulf Coast

More Development Due On Humble East Flank

More development is scheduled for the east flank of Humble dome area of north Harris County with the Texas Company opening deep production in the Jackson or Yegua series. The company found considerable saturation in the 5300-foot horizon and on one potential test the well flowed around 600 barrels daily through ¼-inch choke. Total depth is 5346 feet with 7-inch casing set on bottom. The well is Stevenson 52 and already the company has announced it will drill Stevenson 53, 660 feet north.

This area is due to be called Humble Deep, and at present the company is planning on dually completing the discovery well since two sand sections were logged. It is believed that this sand corresponds with deep production opened by Cullen and West in another part of the field in 1928, and which produced considerable oil.

Montgomery County: Humble Oil and Refining Company is resuming drilling in Texas Long Leaf 1-B, Wilcox wildcat in the Splendora area. Operations have been shut down to recement surface casing. Depth is around 9030 feet in hard shale. This well, located in Walker County School Land survey, is drawing considerable interest since previous wildcats in the area showed some oil and gas.

In the Pinehurst field area, LaGloria Corporation (Gray and Wolfe) is reported waiting on orders in Grogan-Cochran 2, 1900 feet due north of the discovery producer. Total depth is 10,463 feet, and apparently sand conditions were not good enough to warrant the setting of flowing pipe. The discovery well was completed in the Wilcox.

Jefferson County: Humble Oil and Refining has resumed drilling in McFaddin 1-C, wildcat in Salt Bayou area. Drilling previously was halted at 10,330 feet for three weeks where an electrical survey was run, sidewall samples taken and the hole conditioned.

Wildcats: Drilling of wildcats is showing an increase in scattered coastal areas. Jack W. Frazier et al are preparing to drill a 9500-foot test northeast of Algoa in Galveston County. It is on lot 64 of I&GN survey, A-601.

South Louisiana

New Sand Opened at 10,445 Feet at Venice

The Venice field of Plaquemines Parish again is back in the development spotlight with a new sand being opened by Tide Water Associated Oil Company. This reserve already is a multiple-sand area, and the new well adds another horizon to yield oil below the 10,000-foot level. The well is Buras Levee District 22 in section 28-21s-30e. With the hole bottomed at 10,925 feet, perforations were made at 10,445-502 feet and on a potential run the well flowed 9.46 barrels of 35.1 gravity oil hourly through ⅛-inch choke. The tubing pressure was 1375 pounds, casing sealed.

Acadia Parish: Continental Oil Company is making a new test in Acadia Parish School Land 1, wildcat on the north flank of the Richie dome in section 16-7s-1w. The first perforations were made at 8580-90 feet and these have been squeezed for another test. On initial test the well flowed 153 barrels of 35 gravity oil in 10 hours, through 11/64-inch choke. This well is the discovery of new production on the north side of the dome and opens considerable new acreage to further drilling.

Humble Oil and Refining Company has completed a southward extension to the North Crowley field in Acadia Parish. The Williams 10, section 4-9s-1e, was perforated in the 7210-foot level and flowed 10 barrels hourly through 9/64-inch choke. Total depth is 9689 feet.

Wildcats: Two deep wildcat tests are being planned, both in Acadia Parish. First is Union Sulphur Company's Daigle 1 in southwest Church Point area. Located in section 49-7s-2e, the well will test the deeper producing possibilities. The other well is Continental and Sun's Homeseekers 2 in the Estherwood area. Located in section 54-10s-1w, the wildcat is projected to 12,000 feet. Both of these propects have been drilled before, with slight oil and gas shows. Interest in the areas is indicated by the acreage situation, which is controlled tightly by major companies.

St. James Parish: The Hester area is becoming active again with Humble Oil and Refining Company drilling one well and making location for another. The new test is Canal 1-B in section 11-12s-5e. The domal area has been revived since one well found production in a flank test.

North Louisiana

Claiborne Parish Wildcat Drills Into Salt Plug

Frankel et al's Muslow 1, S½ NE NW 30-21n-7w, wildcat in Claiborne Parish, originally intended to explore to 8000 feet, halted in salt at 5985 feet. Pipe is set to test a number of Cotton Valley shows. It topped Cotton Valley at 4090 feet then drilled and cored through Cotton Valley and into conglomerate, finding nothing to definitely establish Buckner or Smackover lime zones before encountering salt plug. The well is on the Homer dome and is structurally more than 5000 feet high to a venture which recently quit 4 miles to the southwest in barren Cotton Valley at 10,761 feet.

Bossier Parish: E. C. Johnston acidized two Pettit lime sections at 6130-52 feet and 6470-90 feet at Blocker 1, NE NW SW 1-22n-13w. Operator installed pumping unit and this wildcat alternately pumped and flowed by heads ungauged amounts of oil.

Concordia Parish: The California Co.-Carter Oil Company's State Lease 476-3, irregular Section 15-9n-10e, a directionally drilled test at Lake St. John, found 7 feet of oil sand in Wilcox topped at 3415 feet. This is a third directional try for production at Lake St. John. Production string is set here at 4644 feet, total depth.

Hair Trigger Service—and why

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Spacing Changes Sought in Stephens-Smart Field

Application has been made by the state of Arkansas to PAW director of production, D. R. Knowlton, for a supplemental order to PAO 11 permitting the drilling of two oil wells on each 40 surface acres in the Stephens-Smart area of Columbia, Nevada and Ouachita Counties. Specifically, the request was that operators in the field mentioned be allowed to follow the dictates of good geological and engineering practice in locating their wells in the center of any two quarters of a governmental quarter-quarter section of land.

There are now 47 producing wells in the Smart area of the Stephens field, 16 producing from Tokio at 2500 feet, 5 from Glen Rose at 3200 feet and 26 wells in Travis Peak at 3500 feet. These wells are now producing 4000 barrels of 28-30 gravity sweet oil daily.

On September 26, 1941, Arkansas Oil and Gas Commission, found that not more than one well should be drilled on any 10-acre lease in the subject area, providing also that the wells should be drilled in the center of the 10-acre units. Federal Conservation Order M-68 limited drilling to not more than 1 well to each 40 acres and as a result there are now 8 wells on 10-acre units, 22 wells in the center of 40-acre units, and 17 wells producing from the center of a quarter of a governmental quarter-quarter section of land.

This petition proposes that the petroleum administration allow the drilling of 49 selected locations and by so doing, the average daily production can be raised to not less than 8500 barrels daily.

Proven reserves under the area shown by the maps forwarded with the application exceed 24 million barrels of recoverable oil if the selected locations are drilled. Without the drilling of the proposed locations, in excess of 12 million barrels of oil will be left in the reservoir.

The fact that the area is productive of sweet oil and that there is an absence of high pressure will limit the requirements of first grade steel to only 83 tons. The balance of the steel needed, 2449 tons, can be second-hand material.

Mississippi

Wayne County Wildcat Continues Testing

Gulf Refining Company's Davis 1, NE SE 2-9n-9w, Wayne County wildcat, showed mostly salt water when pipe was perforated in upper section of Tuscaloosa horizon. It was planned to retest the same horizon before a try for production will be made in shallow Eutaw zone. Cores found good showings in Eutaw.

WESLEY MOORE, with British American Oil Producing Company, Oklahoma City, has been elected chairman of the Central Oklahoma chapter of the American Petroleum Institute, production division. He succeeds H. O. Harder.

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California

Fresno County Test Gives Promise of Oil

Interest in California wildcat operations this week is divided between a prospective discovery in Fresno County and announcements of the unusually large number of 15 new tests listed for early starts.

The week's new find is in the Raisin City area, Fresno County, S.T.U. 53-14, NW SW NE 14-15-17, drilled for the joint interests of the Seaboard Oil Company, Tide Water Associated Oil Company and Union Oil Company, who hold about 2,200 acres of surrounding leases. It is 1½ miles west of Raisin City, more than a mile from production. Showings were obtained in all of three formation tests made at different levels. Test at 5000-5029 feet yielded 5,000,000 cubic feet of gas. The interval 6235-6268 feet tested 9,000,000 cubic feet of gas with an unimportant show of oil. The third interval, 6275-6306 feet, with valve open only a short time, yielded a strong flow of 24.5-gravity oil, estimated as being good for 500 barrels a day or better.

The find is of more than ordinary interest in view of the fact that it is Eocene production, the first discovered in any part of the widely prospected Raisin City area. Its possibilities for any outstanding addition to reserves, however, are restricted because of the thinness of the sand. Preliminary estimates give an aggregate of 32 feet of sand, with no more than 13 feet being rated as good oil sand.

Of the total of 15 new tests announced, 11 are to be drilled in various areas of Kern County. One wildcat each is listed for Contra Costa, Fresno, Madera and Ventura counties.

Kern County: The Western Gulf Oil Company-Texas Company Paloma area wildcat, L.A.A. Club 36-1, 1-32-26, with more than 60 feet of good oil sand already cored in the equivalent of the Paloma sand, was drilling around 11,400 feet in the hope of picking up the Gallagher sand equivalent.

Hopes for the Tejon Ranch wildcat, Richfield Oil Company's Tejon 4, 34-11-19, are waning now that the Reserve sand has been tested without showings. Drilling was resumed at 4670 feet with the intention of going several hundred feet deeper to examine the equivalent of the Fruitvale sand.

Poso Creek is experiencing a surge of fresh development activity, with operators there joining in a general effort to get into production the last of dormant low-gravity acreage in the field. Standard Oil Company of California has received approval for 33 new wells.

C. T. FOSTER has been appointed manager of The Standard Oil Company of Ohio's department of industrial relations, filling the position formerly occupied by Dr. W. P. Edmunds. His new responsibilities will be in addition to his present duties as assistant to the president. Foster, who was born in Cleveland, is a graduate of Western Reserve University.

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Michigan

First Commercial Well Completed at Rose Lake

Sun Oil Company's Bowman 1, S½ NE NE 6-18n-9w, Cedar Township, Osceola County, flowed 166 barrels oil in 1½ hours from Traverse lime formation to revive prospects on the Rose Lake structure. Traverse was logged at 3138 feet and perforated between 3160 and 3229 feet. Under choke, it flowed 666 barrels in 30 hours with potential estimated up to 1800 barrels per day. Bowman is first commercial well for Rose Lake but discovery rights may still be assigned to Union and Atha's Allen 1, S½ SW SE 31-19n-9w, Rose Lake Township. Allen is still under test in the Traverse betweeen 3131 and 3160 feet after drilling the Dundee and Monroe formations dry to 3990 feet. Originally Allen swabbed and flowed 50 barrels on a two-day test from Traverse before being deepened. Sun Oil Company's producer is a southeast diagonal offset.

Rocky Mountain Area

Steamboat Extension Better Than Discovery

At Steamboat Butte, Wyoming, British-American Oil Producing Company's Tribal 1-C, NEc Lot 4, 32-4n-1w, pumped 587 bbls initial for a better well than the discovery a quarter mile to the southeast. The extension well appears to be a better well than pumping test shows, production being limited by capacity of the pumping unit. The 5½-inch csg was set in the Morrison at 5104 feet, Sundance, pay zone, was topped at 5119 feet, bottom 5144 feet, with rotary table elevation of 5719 feet.

Superior Oil Company's Ong 1, CSE SW 31-36n-65w, located north of the fault cutting across the northwest edge of the Lance Creek structure toward the possibility of encountering deep-seated fault trap production in the Cretaceous, topped objective Dakota sand at 8,754 feet and recovered core at 8762-70 feet, showing slight saturation in the upper part and better saturation in the lower 2 feet. This well is on the down-throw side of the fault and topped Dakota about 5500 feet lower than encountered in Lance Creek. It is believed that the almost identical light oil developed in Basal Sundance and Leo sands were fed up fault plane from Cretaceous beds north of the fault. Leo sands (Pennsylvanian) at Lance Creek yield 42 gravity oil, while normally Pennsylvanian zones in Rocky Mountain area yield heavy oil. Ohio Oil Company's Converse Sheep 8, NW SE SW 32-36n-65w, a Lance Creek Unit well, deepened to test the Bell and Madison zones, encountered water in Madison lime at 5692 feet and is completing at 5570 feet, in Leo zone. Drillstem test of the Bell sand at 5498-5512 feet showed only 2 barrels of oil.

Wasatch Oil Production Company's Government 1-D, SW SE SE 8-27n-113w, deep test of the North LaBarge structure, Sublette County, is abandoned at 8005 feet in the lower Frontier formation. This wildcat had a small show of gas in a thin sand in the Upper Frontier at 6600 feet.

United States Well Completions

CALIFORNIA

Fresno County—Coalinga, old field: Standard's 26-23A, se sw sw 23-19-15, Kreyenhagen 2551 ft, abnd 2556 ft.

Tide Water Associated's Guardian 24, nw ne nw 2-20-15, pump 29 bbls 20.6 gr oil, 12 water, 355 fe perf 3511 ft, black shale 3148 ft, td 3516 ft.

Fresno County—Helm: Amerada's Shultz F-23-36, c ne sw 36-16-17 Kreyenhagen 7748 ft, Cretaceous 8535 ft, abnd 8600 ft.

Kern County—Belridge, South: Belridge Oil Co's 45A-34, ne ne sw 35-28-21, pump 40 bbls 14.1-gr oil, 27 water, perf 379-740 ft, td 825 ft, pd 740 ft.

Chanslor Canfield Midway Oil Co's BF 11-7, se sw nw 11-29-21, pump 36 bbls 14-gr oil, 36 water, 69 ft perf 1090 ft, td 1431 ft, pd 1030 ft.

General's Belridge 25-11, sw ne ne 11-29-21, pump 44 bbls 14.6-gr oil, 23 water, 225 ft perf 1030 ft, oil sand 594 ft, td 1052 ft.

Kern County—Buena Vista Hills: Standard's 119-11D, nw ne se 11-32-24, pump 47 bbls 27.5-gr. oil, 3 water, 70 ft perf 2990 ft, td 2992 ft.

Kern County—Elk Hills: U. S. Navy's 54-3G, sw sw ne 3-31-24, pump 114 bbls 26.9-gr, 85 ft perf 2878 ft, Scalex 2770 ft, Mulinia 2920 ft, td 3002 ft, pd 2880 ft.

Kern County—Kern Front: Carrec Oil Co's 10, se se sw 11-28-27, pump 75 bbls 14.3-gr, 14 water, 156 ft perf 1985 ft, td 2039 ft, pd 1985 ft.

S. M. S. Oil Co's 5, sw se sw 10-28-27, pump 10 bbls 12.5-gr oil, 10 water, 70 ft perf 2332 ft, oil sand 2275 ft, td 2349 ft, pd 2339 ft.

Standard's 62, sw sw se 15-28-27, pump 41 bbls 13.3-gr oil, 120 water, 237 ft perf 2297 ft, td 2300 ft.

Standard's 16, ne sw ne 27-28-27 pump 26 bbls 12.2-gr oil, 7 water, 224 ft perf 2559 ft, td 2561 ft.

Kern County—Midway-Sunset: Chanslor Canfield Midway Oil Co's 65-9, nw sw se 9-32-23, pump 28 bbls 15-9-gr oil, 27 water, perf 1707-1790 ft, td 1800 ft.

H. & T. Oil Co's 11, se nw nw 15-31-22, pump 50 bbls 13.6-gr, 297 ft perf 1184 ft, sand 900-1135 ft, td 1184 ft.

Vedder Petroleum Co's 3, se se se 9-31-22, pump 25 bbls 14-gr oil, 5 water, 279 ft perf 848 ft, td 960 ft.

Kern County—Mount Poso: Chanslor Canfield Midway Oil Co's Mon 23, nw ne nw 26-27-28, pump 32 bbls 15.3-gr oil, 21 water, 52 ft perf 1492 ft, td 1492 ft.

Shell's Vedder 39, ne sw se 9-27-28, pump 144 bbls 16-gr oil, 29 water, 77 ft perf 1695 ft, Vedder 1626 ft, td 1695 ft.

Los Angeles County—Del Valle: Standard's Sepulveda 5, ne ne se 17-4-17, suspended 9268 ft.

Los Angeles County—Rosecrans: Union's Amestoy, 1,100 ft s 330 ft w intersec c/l Hoover St and s/l 135th St, 18-3-13, abnd 8083 ft.

Los Angeles County—Torrance: C. H. LeBow and George A. McNee's Dominguez Estate 3, 2375 ft n 150 ft e c/l Victor and Huntington Sts, 5-4-14, pump 18 bbls 16-gr, perf 3350-3470, 3575-3705 ft, Poker Chip 3485 ft, td 3715 ft.

Orange County—Huntington Beach: Southwest Exploration Co's State J-11, 1926 ft wly along c/l Ocean Ave proj fr c/l 23rd St thence 123 ft nly at r/a 3-6-11, flow 235 bbls, 4001 ft.

San Joaquin County—Lodi: Amerada's Comm. 16-1, sw ne ne 16-4-7, 5,600,000 dry gas, ⅝-in, 689/90 lbs, perf 2285-2305 ft, td 2700 ft.

Ventura County—Rincon: Honolulu Oil Corp's Whitten Permit 56-5, 2280 ft sly 202 ft wly fr nec State lease 56, 7-3-24, pump 87 bbls 30-gr oil, 4 water, perf 2685-2813, 2952-3251 ft, top Miley 2670 ft, td 3300 ft.

CALIFORNIA WILDCATS

Kern County—Failure: D. D. Dunlap's Dyer Creek 1, ne sw se 11-26-27, Vedder 2280 ft, abnd 2308 ft.

Kings County—Failure: Texas Co's Souza 14-33, sw sw nw 33-17-22, Kreyenhagen 5414 ft, Eocene 5475 ft, hard shale 5415 ft, green gray sand and volcanic glass top 4742 ft, abnd 5776 ft.

ILLINOIS

Clay County—Gulf's Keck 5, se se se 26-4n-7e, Tar Spgs 2306-14 ft, 70 bbls, 2327 ft.

Central Pipe Line's Pilcher 1, nw nw 13-5n-5e McCl 2441-57 ft, 80 bbls, 2457 ft.

Gulf's Pilcher 1, nw sw 13-5n-5e, abnd 2421 ft.

Luttrell et al's Reed 11-a, c ne sw nw 14-5n-5e, Pt Crk 2257-61 ft, Ben 2289-2302 ft, Aux V 2341-87 ft, 175 bbls, 2387 ft.

Clinton County—Texas Co's Price-Gray Comm 11, sw se 35-3n-2w, dev 2632-35 ft, 80 bbls, 2658 ft.

Franklin County—E. S. Adkins' Peabody Coal 30, ne sw sw 16-7s-3e, Tar Spgs 2642-74 ft, 130 bbls, 2074 ft.

Hamilton County—Texas Co's Cotter 1, se ne sw 34-6s-6e, Aux V 3113-33 ft, 144 bbls, 3133 ft.

Pure's Johnson Cons 1, nw se sw 18-6s-7e, Tar Spgs, 2429-35 ft, 1187 bbls, 3122 ft.

Jefferson County—Gulf's Irvin 1, ne nw 27-3s-4e, McCl 3091-93 ft, 112 bbls, 3201 ft.

Lawrence County—Olds Drlg Co's Corrie 1, ne sw ne 11-2n-12w, abnd 1731 ft.

Kentucky Natural Gas Co.'s Grey 1, ne nw 19-4n-10w, Bridgeport 745-98 ft, 2,156,000 gas, 798 ft.

Marion County—Big Chief Drlg Co.'s Luttrell 1, sw nw nw 10-1n-2e, Rosi 2070-84 ft, 50 bbls, 2104 ft.

Wabash County—Dean & Morton's Goodson 1, sw sw ne 14-1s-13w, abnd 1916 ft.

Texas Co.'s Steckler 2, sw ne se 8-1s-12w, Weller 2000-10 ft, 112 bbls, 2011 ft.

Hayes & Wolfe's Neikirk 1, s½ sw sw 4-1n-13w, Ben 2546-60 ft, 35 bbls, 2560 ft.

Hayes & Wolfe's Hinderliter 3, ne ne nw 9-1n-13w, Ben 2535-48 ft, 25 bbls, 2548 ft.

W. E. Bailor's Michael 1A, c se se 27-1n-13w, McCl 2644-52 ft, O'Hara 2627-33 ft, 35 bbls, 2667 ft.

Wayne County—Deep Rock's Stroup 4, nw se 29-1s-7e, abnd 3280 ft.

Pure's McCrackin B-4, c nw nw 3-1n-8e, McCl 3040-43 ft, 3 bbls, 2115 ft.

Pure's Blackburn A-2, ne nw 25-1n-8e, McCl 3097-3100 ft, 2 bbls, 3120 ft.

Pure's Reid A-1, se se sw 35-2n-7e, Aux V 2907-35 ft, 108 bbls, 2953 ft.

White County—McBride Inc's Hon 2, nw sw ne 6-4s-14w, Biehl 1520-62 ft, 100 bbls, 1562 ft.

Kubat et al's Kuyendall 1, n½ ne nw 25-4s-10e, abnd 3121 ft.

Hiawatha's Vaoil 6, ne ne se 19-7s-11e, Aux V 2723-40 ft, 20 bbls, 2740 ft.

ILLINOIS WILDCATS

Bond County—Failure: National's Ulmet 1, se sw sw 16-4n-3w, abnd 1253 ft.

Clinton County—Failure: Wiser Oil Co's Jantzen 1, nw sw ne 33-2n-2w, abnd 1577 ft.

Black-Pearson et al's Kluth 1, sw sw sw 22-2n-1w, abnd 3028 ft.

Lawrence County—Failure: Big Four O&G Co's Buchanan 1, near sw se sw 8-3n-12w, abnd 3567 ft.

Marion County—Failure: Mid-Continent's Kleeman 1, ne nw sw 11-4n-1e, abnd 1867 ft.

Randolph County—Failure: General O&G Co's Schmoll 1, 28-4s-7w, abnd 438 ft.

Wayne County—Discovery: Ohio Fuel's Mussbaum 1, nw sw 13-2s-6e, McCl 3308-16 ft, 375 bbls, 3335 ft.

Wayne County—Failure: Gulf's Higgins 1, nw nw se 19-1n-5e, abnd 3077 ft.

White County—Discovery: Whisenant & Trenchard's Owen 1, sw nw nw 18-4s-14w, Ben 2800-53 ft, 65 bbls, 2853 ft.

INDIANA

Gibson County—R. D. Brown Inc's Crecelius 2 nw sw se 36-1s-10w, Hds 1330-50 ft, 50 bbls, 1350 ft.

Spencer County—Chas Leeper's Painter 1, sw ne 34-6s-5w, abnd 1085 ft.

Vandenburg County—Illind and Capshaw's Schutte 2, sw se sw 29-6s-11w, Walts 1805-20 ft, 29 bbls, 1820 ft.

KANSAS

Barber County—Un-named: Champlin's Hildebrand B-1, se ne se 22-32s-15w, Viola 4982 ft, est 25,000,000 gas, 5110 ft.

Barber County—Medicine Lodge: Barbara's Lasswell 1, c se 19-33s-13w, Miss chat 4645 ft, 13,000,000 gas, 4700 ft.

Barton County—Kraft-Prusa: Black-Marshall's Wendlant 1, c ne se 29-16s-11w, Arb 3342 ft, 1000 gals acid, pump 136 bbls, 3347 ft.

Black-Marshall's Schneweis 3, ne nw nw 5-17s-11w, Arb 3366 ft, pump 216 bbls, 3375 ft.

Cities Service's Hogan A-7, ne sw ne 11-17s-11w, Arb 3387 ft, pump 186 bbls, 3412 ft.

Winkler-Koch's Ehler 1, ne nw se 11-17s-11w, Arb 3388 ft, 3000 gals acid, pump 26 bbls 20 hrs, 3390 ft.

Lauch & Moncrief's Grossardt 2, ne ne nw 16-17s-11w, Arb 3281 ft, pump 384 bbls, 3297 ft.

Barton County—Roesler: Stanolind's Roesler 1, se sw ne 14-18s-11w, Arb 3305 ft, abnd 3309 ft.

Barton County—Lanterman: Three Way Drlg Co's Schwartz 1, c se se 29-15s-11w, Arb 3352 ft, abnd 3382 ft.

Butler County—Eldorado: Phil-Han and Adair Morton's Robinson 3, sw se se 18-25s-5e, Miss 2530 ft, pump 40 bbls, 2572 ft.

Ellis County—Bemis: Anderson & Prichard's Samuelson 1, nw nw nw 36-11s-17w, Arb 3597 ft, 500 gals acid, pump 78 bbls, 3605 ft.

Ellis County—Walter: Doley Oil Co's Joy 2, ne sw ne 14-12s-18w, congl 3614 ft, abnd 3705 ft.

Ellis County—Ellis: Darby Oil Co's Bittel

Wells Completed in the United States in Week Ended July 31, 1943

Data preliminary and subject to revision. Revised and more complete data on all completions shown in monthly summary of drilling, published in second issue of each month. More detailed data on wildcats published in third issue of each month.

State or District	FIELD COMPLETIONS: New Wells *Oil	Gas	†Input	Dry	Total	Old Wells Deepened	WILDCAT COMPLETIONS *Oil	Gas	Dry	Total	ALL COMPLETIONS: This Week	Last Week	Cumulative: This Year	Last Year
Alabama													1	3
Arkansas												7	133	125
California	18	1		4	23				2	2	25	26	861	452
Colorado												2	12	7
Georgia													1	2
Illinois	18	1		5	24		2		7	9	33	27	1,023	1,190
Indiana	2			1	3						3	5	137	232
Kansas	18	2		8	28		4		8	12	40	35	968	946
Kentucky	2				2		2	1	4	7	9	14	186	86
Louisiana	4			2	6		1		1	2	8	11	364	602
North Louisiana												3	159	
South Louisiana	4			2	6		1		1	2	8	8	205	
Michigan	2	3		3	8				4	4	12	12	309	402
Mississippi												3	27	69
Missouri													10	17
Montana	6	3			9						9	23	138	102
Nebraska														26
New Mexico	1			2	3						3	4	143	238
New York	14		10		24						24	26	690	707
Ohio	4	6		6	16						16	23	523	650
Oklahoma	14		1	7	22	2	1		5	6	30	19	748	882
Pennsylvania	32	5	18	2	57						57	55	1,570	2,407
Tennessee													5	7
Texas	39	1	1	15	56	1	4		17	21	78	102	2,308	3,590
E. T. Bor. Co.'s													11	
East Texas Field													4	
Rest of E. Texas	1			1	2						2	1	131	
North Texas	9		1	7	17		1		6	7	24	41	556	
W. Central Texas	2			3	5				2	2	7	8	204	
West Texas	9				9	1					10	12	502	
Texas Panhandle	2				2						2	5	115	
G. Coast, Upper	3			1	4				3	3	7	10	181	
G. Coast, Lower	10			2	12		2		3	5	17	13	351	
Southwest Texas	3	1		1	5		1		3	4	9	12	217	
S. Central Texas													36	
West Virginia		7		2	9						9	16	350	441
Wyoming	5	1		2	8						8	6	73	46
Total U. S.	179	30	30	59	298	3	14	1	48	63	364	416	10,580	13,229

* Includes distillate wells. † Includes salt water disposal wells.

B-1, c w½ ne nw 6-13s-20w, Arb 3838 ft, pump 632 bbls, 3852 ft.

Ellsworth County—Stoltenberg: Vickers Petroleum Co's Purma 1, c e½ sw se 6-16s-10w, Arb 3305 ft, abnd 3310 ft.

Benson Drilling Co's Wamhoff 2, c w½ se se 26-16s-10w, Arb 3343 ft, abnd 3353 ft.

Greenwood County—Virgil: Aikman & Braden's Mennonite 4, se nw nw 11-24s-12e, Miss 1764 ft, 500 gals acid, pump 50 bbls, 1780 ft.

Leavenworth County—McLouth: Charles Miller's K. C Life 1, sw se nw 6-10s-21e, Miss 1448 ft, abnd 1480 ft.

Marion County—Lost Springs: Ring Mac's Euwirth 1, c w½ nw se 5-18s-4e, Miss 2397 ft, abnd 2449 ft.

McPherson County—Crowthers: Westgate-Greenland's Blaine 1, c s½ se sw 23-17s-1w, Miss 2776 ft, 2000 gals acid, flow 3000, bbls, 2792 ft.

McPherson County—S. Roxbury: Tuesday Oil Co's Tinkler 1, c ne se 30-17s-1w, Miss 2673 ft, pump 200 bbls, 2680 ft.

McPherson County—Lindsborg: Dickey Oil Co's Johnson 2, c w½ sw nw 19-17s-3w, Viola 3389 ft, 5000 gals acid, pump 26 bbls, 3395 ft.

Phillips County—Ray: Cities Service's Templeton 2, sw ne sw 14-5s-20w, Arb 3514 ft, 4000 gals acid, pump 148 bbls, 3630 ft.

Pratt County—N. Stark: Lion's Moeller 2, c sw sw 7-26s-11w, Viola 4147 ft, 500 gals acid, 3000 bbls, 4151 ft.

Reno County—Peace Creek: Cities Service's Valdois 1, sw se nw 6-23s-9w, Viola 3727 ft, 1500 gals acid, pump 68 bbls, 3754 ft.

Rice County—Chase-Keesling: Cities Service's Coldwater A-2, c sw sw 8-20s-9w, Arb 3266 ft, 3000 gals acid, pump 103 bbls oil, 68 wtr, 3271 ft.

Rooks County—Westhusin: Plainstock's Westhusin 4, c nw se 11-9s-17w, Lans 3138 ft, 3000 gals acid, pump 484 bbls, 3335 ft.

Russell County—Trapp: Stanolind's Letsch B-4, c s½ sw sw 4-15s-13w, Lans 3027 ft, 3500 gals acid, pump 853 bbls, 3341 ft.

H. H. Blair et al's Rupbenthal 1, c n½ sw sw 16-5s-13w, Arb 3335 ft, abnd 3360 ft.

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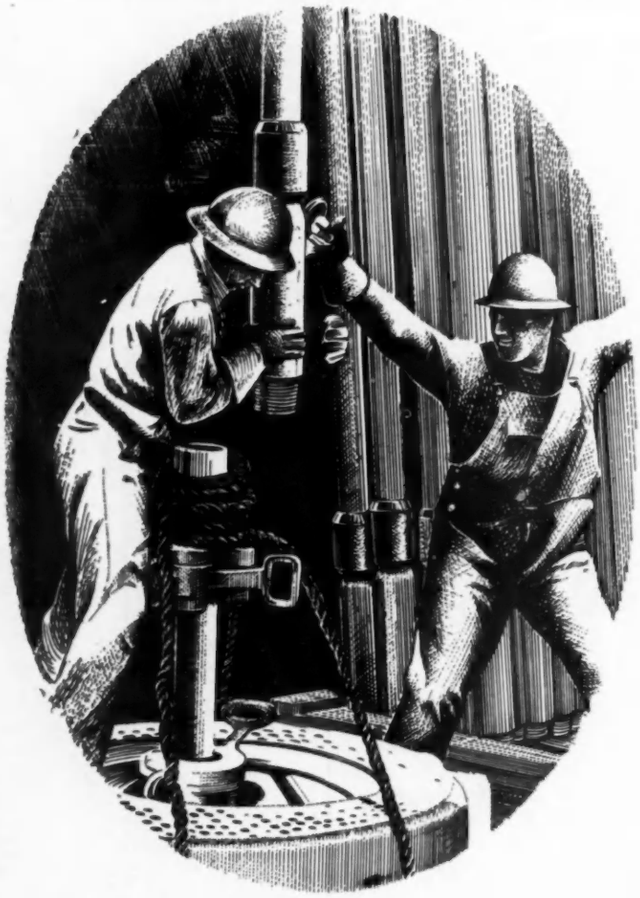

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PATTERSON-BALLAGH

DRILL PIPE & CASING PROTECTORS

KANSAS WILDCATS

Barton County—Failure: Vernon Alpine and Brumson's Hutchman 1, c s½ se ne 28-16s-12w, abnd 3440 ft.

Herbert Gussman's Ruscoe 1, nwc 16-19s-12w, Arb 3439 ft, abnd 3481 ft.

National Refining Co's Panne 1, ne nw ne 35-19s-13w, Arb 3438 ft, abnd 3485 ft.

Transwestern's Deckert 1, se ne sw 16-20s-15w, Arb 3794 ft, abnd 3815 ft.

Edwards County—Oil Discovery: Cities Service's Wilson B-1, se nw sw 4-25s-16w, Lans 3940-44 ft and 3957-71 ft, 4600 gals acid, pump 132 bbls oil, 60 wtr, 3971 ft.

Ellis County—Oil Discovery: Coralena Oil Co's Glathart 1, sec 16-12s-19w, Lans 3503-14 ft and 3550-55 ft, 2000 gals acid, pump 275 bbls, 3560 ft.

Marion County—Failure: Adair-Morton's DeMand 1, nec se 15-18s-4e, Miss 2302 ft, abnd 2375 ft.

Ottawa County—Failure: Auto Ordnance's Gekler 1, nwc 20-12s-2w, Simp 3423 ft, Arb 3479 ft, abnd 3510 ft.

Rush County—Failure: Phillips' Pechanec 1, c se sw 18-18s-16w, Gran wash 3596 ft, abnd 3602 ft.

Saline County—Oil Discovery: Wolf Creek Oil Co's Karber 1, c s½ sw se 9-16s-1w, Kansas City lime 1989 ft, 86 bbls, 2000 ft.

Scott County—Failure: Stanolind's Turnin 1, nwc 16-19s-31w, Arb 5144 ft, abnd 5164 ft.

Stafford County—Oil Discovery: Skelly's Campbell 1, sw se sw 34-24s-15w, Arb 4419 ft, 3000 bbls, 4433 ft.

KENTUCKY

Henderson County—Carter's Gates 1, 22-0-23, Bethel 2374-80 ft, McCl lm 2554-57 ft, 49 bbls, 2620 ft.

L. E. Owens' Fulkerson 1, 13-0-25, Tar Spgs 675-93 ft, 5 bbls, 693 ft.

KENTUCKY WILDCAT COMPLETIONS

Crittenden County—Failure: H. C. Deitrich's Drenner 1, 12-K-19, abnd 1327 ft.

Edmonson County—Failure: Miller Ross' Ky Rock Asphalt Co 1, 18-J-41, abnd 1367½ ft.

Henderson County—Discovery: Sinclair Prairie's Higginson 1, 10-n-23, Cyp 2236-48, McCl lm 2662-90 ft, 27 bbls, 2747 ft.

Indiana Farm Bureau's Chessire 1, 9-n-24, Mans 785-90 ft, 604,000 gas, 790 ft.

Carter's DeVasher 1, 24-0-24, McCl lm 2498-2506 ft, 114 bbls, 2655 ft.

Henderson County—Failure: Sun et al's Hall 1, 4-p-24, abnd 2530 ft.

Todd County—Putnam et al's Ward 1, 23-c-29, abnd 1557 ft.

SOUTH LOUISIANA

Acadia Parish—Tepetate: Continental's Homeseekers 5-D, 1980 ft e, 660 ft n sw 29-7s-2w, 7-in 9413 ft, perf 9119-30 ft and 9102-12 ft, flow 98 bbls condensate, 10/64-in, td 10,598 ft.

Calcasieu Parish—Vinton: Union Oil Co's Gray 9-G, 2314 ft w, 330 ft n se c 28-10s-12w, 5½-in 5860 ft, perf 5815-30 ft, flow 182 bbls, ⅛-in, td 5860 ft.

Evangeline Parish—Pine Prairie: Texas Co's Norman 7, 2980 ft n, 710 ft w of most e'ly se cor 27-3s-2e, 7-in 10,208 ft, perf 10,087-112 ft, flow 112 bbls, 10/64-in, td 10,224 ft.

Plaquemines Parish—Delacroix: Texas Co's State-Delacroix 5, 1363 ft s, 250 e of nw c 2-16s-14e, 5½-in 10,061 ft, perf 8970-76 ft, flow 62 bbls, ⅛-in, td 10,303 ft.

St. Landry Parish—Shuteston: Sun's Daily 1, 2400 ft w'ly alg sl fr se c 175, thence 835 ft n at ra in 175-7s-4e, abnd 10,689 ft.

St. Martin Parish—Lake Chicot: Amerada and Phillips' Jeanerette 1, 3390 ft s, 4570 w ne c 24-11s-9e, abnd 11,980 ft.

SOUTH LOUISIANA NEW SAND

Plaquemines Parish—Venice: Tide Water's Buras Levee 22, 1135 ft n, 230 w se c 28-21s-30e, perf 10,445-502 ft, flow 227 bbls, ⅛-in, td 10,925 ft.

SOUTH LOUISIANA WILDCAT

Terrebonne Parish—Failure: Union Oil Co's Calvert & Todd 1, ne Houma, start e cor sec 16, go s 37 deg 00 mins w for 3000 ft, th n 47 deg 00 mins w 200 ft to lcn in sec 16-17s-17e, abnd 12,008 ft.

MICHIGAN

Gratiot County—Pine River: Chartiers Oil Co's Weaver 1, ne ne se 31-12n-3w, abnd 3294 ft.

Isabella County—Fremont: Leslie T. Barber's Peacock 2, sw se ne 28-13n-5w, Stray sand, 990,000 gas, 1224 ft.

Mecosta County—Fork: Sun's Murray 4, s½ ne sw 5-16n-7w, Dundee lime, swab 29 bbls, 3818 ft.

Missaukee County—Riverside: Taggart Bros' RM 124, c se 19-21n-7w, Stray sand, 1,600,000 gas, 1458 ft.

Taggart Bros' RM 125, c ne 19-21n-7w, Stray sand, 6,500,000 gas, 1543 ft.

Osceola County—Cedar: Sun's Beardsley 2, s½ sw sw 27-18n-9w, Dundee lime, flow and swab 61 bbls, 3776 ft.

Van Buren County—Geneva: Earl G. Hartman's Marr 1, sw nw se 24-1s-16w, abnd 1098 ft.

W. H. Clock's Marr 2, se sw se 24-1s-16w, abnd 1102 ft.

MICHIGAN WILDCATS

Allegan County—Failure: Cook & Fortney's Spaman 1, se se ne 27-3n-14w, abnd 1460 ft.

Berrien County—Failure: J. M. Benson's Seel 1, ne ne nw 24-4s-17w, abnd 945 ft.

Missaukee County—Failure: Gordon & Maguires' Miller 1, n½ nw sw 27-23n-7w, Dundee 3870 ft, abnd 4018 ft.

Wexford County—Failure: Midwest Refineries' Wait 1, s½ sw ne 29-21n-11w, Dundee 3465 ft, abnd 3665 ft.

MONTANA

Fallon County—Cedar Creek: Montana-Dakota's Gov't 183, cse 10-8n-59e, .350 ft gas, 421 lbs rp, Eagle 1445-1670 ft, td 1682 ft.

Glacier County—Cut Bank: C. A. F. Oil Co's Tribal-207 2, se sw ne 29-32n-5w, swab 45 bbls, 7-in 2673 ft, Upper Cut Bank 2670-2702 ft, td 2710 ft.

Trigood's Tribal-232 2, se ne se 30-32n-5w, swab 220 bbls, shot 80 qts 2895-2940 ft, Lower Cut Bank 2897-2916 ft, td 2940 ft, elv 3637 ft.

Phillips County—Bowdoin: Montana-Dakota's Unit 534, cnw se 31-32n-34e, .228 ft gas, 210 lbs rp, Bowdoin 699-760 ft, 5½in 701 ft, td 764 ft.

Montana-Dakota's Unit 736, sw ne ne 27-32n-33e, .537 ft gas, 224 lbs rp, Bowdoin 730-785 ft, Phillips 790-1000 ft, 5½-in 729 ft, td 1025 ft.

Toole County—Kevin-Sunburst: J. H. Agen's Goeddertz 22, se sw sw 23-35n-3w, pump 7 bbls, Sunburst 1410-30 ft, Ellis-Madison 1685-92 ft, 6⅝-in csg 1485 ft, td 1692 ft.

A. Beardsley's Sweeney 1, ne sw ne 5-34n-2w, pump 40 bbls, Ellis-Madison 1467-75 ft, acidized 500 gals, 6⅝-in c 1245 ft, td 1475 ft.

McKnight & Stock's State 4, nw ne nw 16-35n-2w, pump 50 bbls, Ellis-Madison 1586-89 ft, acid 500 gals, td 1600 ft.

Henry Vander Pas' Putnam-Fee 9, nw ne ne 6-34n-1w, pump 10 bbls oil, 35 water, Madison break 1434-56 ft, acid 500 gals, td 1456 ft.

NEW MEXICO

Eddy County: Geo. F. Turner et al's Wills 5, 705 ft nsl and 2025 ft wel 13-20s-28e, abnd 1028 ft.

Lea County—Lynns: Texas Co's State 3-B, c nw nw 16-23s-36e, flow 1460 bbls 2-in, acid 2000 gals 3635-3750 ft.

Lea County—Salt Lake: Walter Monroe Jr et al's State-Texaco 1, c se se 12-20s-32e, elev 3527 ft, base salt 2650 ft, sul w 3150 ft, abnd 3156 ft.

OKLAHOMA

Comanche County—Ft. Sill: Texas Co's Cline 2, nw sw ne 8-3n-10w, pay 965 ft, swab 36 bbls, 1103 ft.

Creek County—Sinclair Prairie's Yarhola 31, c e½ ne 8-17n-7e, Bartles 2578 feet, abnd 2682 ft.

Creek County—S. Sapulpa: L. B. Jackson's Salsman 1, c nl n½ nw 29-17n-11e, Glenn 2001-23 ft, shot 16 qts, pump 4 bbls oil, 150 wtr, 2041 ft.

Haskell County—Brooken: L. S. Grimm's Oskin 1, c sw ne 10-9n-18e, abnd 1402 ft.

Kay County—Garrett: Alco Valve's Blazier 1, se se sw 30-27n-2e, Tonkawa, 2447-84 ft, shot 40 qts, pump 3 bbls, 2491 ft.

Lincoln County—Chandler: Great Lakes Carbon's Westover 1, nw se se 3-14n-3e, Bartles 4403 ft, shot 5 qts, pump 30 bbls, 5176 ft.

Marshall County—Aylesworth: Magnolia's Ward-Hendricks 1, c nw se 13-6s-6e, Bromide 2480 ft, 3000 gals acid, flow 35 bbls, 3150 ft.

Marshall County—Isom Springs: Ellis & Winans' Snell 2, c sw sw 31-7s-6e, pump 8 bbls, 539 ft.

Gill & Morse's Adams 1, se ne sw 31-7s-6e, pump 7 bbls oil, 5 wtr, .539 ft.

Muskogee County—Link: Howard & Castleman's Jefferson 1-A, ne ne se 32-15n-15e, abnd 1373 ft.

Noble County—Otoe City: Superior's Robedeaux 2, c nw ne 21-22n-1e, Layton 3407-25 ft, shot 20 qts, abnd 3427 ft.

Okfuskee County—Cary: Amerada's Kennedy 1, se ne nw 27-12n-10e, Wx 3770 ft, abnd 3891 ft.

Okmulgee County—Brinton: Ed Walker's Reynolds 1-B, near c n½ n½ sw 16-13n-12e, Dutcher 2000-12 ft, shot 8 qts, pump 4 bbls, 2278 ft.

Okmulgee County—Picket Prairie: Sooner's Bovard 3, c nw se 21-16n-11e, Taneha 2192-2209 ft, abnd 2209 ft.

Osage County—Avant: Sinclair-Prairie's Osage 72, sw sw nw 20-23n-12e, Bartles 1640, input well, 1774 ft.

Osage County—Burbank: Magnolia's Osage 11, c w½ se nw 11-26n-6e, Burgess 2782-2845 ft, shot 100 qts, pump 10 bbls in 3 hrs and pump off, 2852 ft.

Osage County—Un-named: Anderson-Prichard's Osage 3, c n½ se sw 32-28n-8e, Miss 2460 ft, shot 15 qts, flow 25 bbls oil and 1,500,000 gas, 2510 ft.

Osage County—Hickory Creek: Ross' Osage 15, near se se sw 14-29n-11e, shot 100 qts, pump 40 bbls oil, 40 wtr, 1074 ft.

Payne County—Ripley: Olson et al's Blank 1, nw sw nw 4-17n-4e, 2nd Wx 4162 ft, abnd 4203 ft.

Seminole County—Bowlegs: Wood's Community 1, c ne ne 2-8n-6e, Wx 4112 ft, 1000 gals acid, shot 45 qts, pump 48 bbls, 4138 ft.

Stephens County—Doyle: Grisso Fuel Co's Burns 1, c nw ne ne 13-1n-5w, County Line lime 3850 ft, pump 69 bbls, 6490 ft.

Stephens County—W. Loco: Razine Bros' Dilley 2, nw sw se 6-3s-5w, sandy lime 1040-74 ft and 1170-1200 ft, 5000 gals acid, flow 150 bbls, 1200 ft.

OKLAHOMA WELLS DEEPENED

Pottawatomie County—St. Louis: Mid-Continent's Upton 1, nw ne ne 1-6n-4e, otd 4179 ft, dolo 4163 ft, pump 25 bbls, 4526 ft.

Stephens County—Woolsey: Fair Oper Co's Baker 2-A, c ne sw ne 35-2s-6w, otd 1840 ft, salt water disposal well, 1997 ft.

OKLAHOMA WILDCATS

Cleveland County—Failure: Piggott et al's hood et al 1, c nw nw nw 6-10n-1e, abnd 6623 ft.

Lincoln County—Failure: Link Oil Co's Langley 1, nw ne se 11-16n-6e, Miss 3235 ft, Wx 3420, abnd 3428 ft.

Pawnee County—Failure: Geo. D. Blalock's Campbell 1, se ne se 5-20n-5e, Miss 3679 ft, abnd 3683 ft.

Pottawatomie County—Oil Discovery: Charles Ralph's Pool 1, c ne ne ne 6-9n-4e, Dense 5175 ft, perf 5185-91 ft, pump 100 bbls oil, 300 wtr, 5232 ft.

Seminole County—Failure: W. J. Martin's Easley 1, nw nw se 34-7n-5e, Wx 4320 ft, abnd 4345 ft.

N. Barrett's Cudjo 1, c w½ nw nw 27-10n-6e, Wx 4735 ft, abnd 4739 ft.

EAST TEXAS

Wood County—Manziel: Magnolia's Johnson 1, 407 ft from n and s and 660 ft ewl 40.58-ac lse, John Polk sur, elev 462 ft, Georgetown 5037 ft, base Goodland 6263 ft, Paluxy 6296 ft, abnd 6503 ft.

Wood County—Hawkins: Humble's Allen 11-D, 856 ft nsl and 2566 ft wel 444.76-ac tr

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on line Brewer-Wideman sur, Woodbine 4670 ft, flow 187 bbls, ¼-in, natural, perf 4805-12 ft, td 4834 ft.

Humble's Lynch 1-B, 522 ft nsl and 2533 ft wel Jas. Pollock sur, Woodbine 4241 ft, Georgetown 4513 ft, flow 248 bbls, ¼-in, perf 4502-10 ft, td 4628 ft.

NORTH TEXAS

Archer County: F. T. Johnson et al's Wright 1, 330 ft out nwc e 80-ac sec 16, Meade L. M. Pasture subdiv, abnd 1457 ft.

Akin & Dimock's Wilson-McCrory 2, 660 ft nsl and 1105 ft ewl ATNCL 121, pump 5 bbls 583-603 ft.

Clay County—Joy: L. T. Burns et al's Lumpkin 1, 330 ft snl and 566 ft ewl sec 31, H. Williams sur, Bend 5410 ft, Mississippian 5890 ft, flow 1011 bbls, ¼-in, 5890-6022 ft.

Clay County: Johnson & Kouri's Taylor-Elliott 17, 2650 ft nsl and 600 ft ewl lse, blk 56, Bacon subdiv, pump 16 bbls, 1131-35 ft.

Johnson & Kouri's Taylor-Elliott 18, 480 ft out swc lse, blk 56, pump 32 bbls, 1126-38 ft.

Johnson & Kouri's Taylor-Elliott 19, 200 ft ewl and 650 ft nsl lse, blk 56, abnd 1150 ft.

Texas Co.'s Hansard 9, 2533 ft se and 650 ft ne of w cor lot 1, F. Longardio sur, A 286, abnd 1180 ft.

Texas Co.'s Saner 4, 1760 ft from ne and 620 ft from nw lines lse, lot 3, Saner-Lomax subdiv of GC&SF, A 794, pump 27 bbls, 1075-86 ft.

Cooke County—Walnut Bend: Carter-Gragg Oil Co.'s Ramsey-Ohio 1, 2200 ft out sec C. Furinash sur, Snuggs 4944 ft, Winger 5530 ft, flow 691 bbls, 2-in, perf 5529-72 ft, td 5615 ft.

Sun's Snuggs 1-B, 330 ft snl and 405 ft wel sec 6, University League-Wm. Moore sur, Simpson 5477 ft, abnd 5601 ft.

Jack County: Paul Steed et al's Jones 4, 467 ft snl and 505 ft wel nw¼ BS&F 2, flow 117 bbls, ¼-in, shot 35 qts, 2948-68 ft.

Throckmorton County: T. P. Putnam's Fee 5, 568 ft nsl and 1155 ft wel sec 10, CIR sur, pump 16 bbls, 646-73 ft, td 675 ft.

Montague County—Bowers: Ross Dr. Co.'s Thomas-Texaco 1, 626 ft nsl and 585 ft ewl Thos. Puckett sur, granite 3621 ft, abnd 3631 ft.

Wichita County: Paradise Oil Co.'s Waggoner Est. 1-D-a, 1440 ft nsl and 836 ft ewl HT&B 14, A 505, pump 25 bbls, 1874-1907 ft.

Geo. Proctor et al's McClure 1, 200 ft snl and 1800 ft wel GC&SF sur, A 363, abnd 1078 ft.

Young County—Allar: Panhandle Ref. Co.-S. H. Fagadau's Allar-Hunt 15, 4565 ft snl and 2547 ft wel of s 1185 acres TE&L 3409, abnd 2720 ft.

NORTH TEXAS WATER FLOOD INPUT

Archer County: Fresno Oil Co.'s Prideaux 15-W, lse 21, 1537 ft ewl and 1681 ft snl 284-ac tr, A. Rohus sur, sand 669-73 ft.

NORTH TEXAS WILDCATS

Archer County—Failures: A. R. Dillard and Gulf's Wilson-McCrory 1, c sw ne ATNCL 83, Bend 5050 ft, Ellenburger 5451 ft, abnd 5617 ft.

S. H. Fagadau et al's Abercrombie 1, 1570 ft nsl and 250 ft ewl sec 152, J. W. Harris subdiv, abnd 1252 ft.

J. L. McMahon et al's Deskin 1, 660 ft out nwc sec 10, blk 5, Clark-Plumb sur, abnd 1125 ft.

W. C. Young et al's Hayter 1, 330 ft nsl and 1635 ft wel TE&L 2421, abnd 1502 ft.

Clay County—Failure: Bridwell Oil Co.'s Harrison-Allen 1, 1000 ft from sw and 892 ft from se lines sec 37, Jane Duncan sur, A 111, abnd 1960 ft.

Clay County—Oil Discovery: L. T. Burns et al's Thompson 1, 500 ft snl and 556 ft wel blk 29, San Augustine University sur, elev 976 ft, Bend 5533 ft, Mississippi 5972 ft, flow 1196 bbls, ¼-in, 6010-44 ft.

Jack County—Failure: Standard of Texas-Hanlon & Buchanan's Smith 1, 660 ft out sec 188.8-ac lse, O. H. P. Davis sur, A 186, Bend 4945 ft, Lower Bend 5020 ft, abnd 5203 ft.

TEXAS GULF COAST

Fort Bend County—Clodine: Wynn Crosby Drilling Co's Blakely 1, 467 ft fr s&el 265-ac tr, H. D. Brown sur, abnd 7550 ft.

Hardin County—Sour Lake: Earl C. Hankamer's Gulf 1, 1710 ft s, 2780 w of nw cor H. Stephenson sur in Stephen Jackson sur, 7-in 2720 ft, sand 2462 ft, flow 128 bbls, 10/64-in, td 3367 ft.

San Jacinto County—Mercy: Shell's Carnes 2, start n cor James Robinson sur, go sw'ly alg nwl for 5220 ft, th se'ly at ra 1700 ft to lcn 271-ac tr, 5½-in 8228 ft, open hole 8241-70 ft, flow 162 bbls, ⅛-in, td 8270 ft.

Shell's Foster 9, start se'ly sw cor William Dobie sur, go e alg sl of sur for 2120 ft thence n at ra 2400 ft to lcn on 5672-ac tr, 5½-in 8265 ft, open hole 7278-87 ft, flow 140 bbls, ⅛-in, td 8287 ft.

TEXAS GULF COAST WILDCATS

Brazos County—Failure: Phillips' Fannette 1, 131-ac tr, William Devers sur, 1½ mi w Millican, abnd 3496 ft.

Jefferson County—Failure: Texas Co's Broussard 1, 4300 ft fr s, 670 fr wl 3179-ac tr, T&NO 51, abnd 8490 ft.

Washington County—Failure: Champlin Refining Co's Dallmeyer 1, 2 mi n Burton, 948 ft fr nwl, 330 ft fr swl of nw 43-ac sur 7, lot 2, J. B. Miller lge, abnd 7566 ft.

LOWER TEXAS COAST

Jackson County—West Mauritz: Louis Crouch's Rodesney 2, 467 ft fr S&el's J. Rambo sur, A267, 281-ac lse, 5½-in 5625 ft, perf 5468-72 ft, flow 60 bbls, ⅛-in, td 5625 ft.

Jackson County—Collier: Texas Co's Bolling-Collier 7, 330 ft fr s&el, 4290 ft fr nel 186-ac tr, James Kerr sur, A-29, 5½-in 2440 ft, completed open hole 2440-50 ft, 67 bbls, ⅛-in, td 2450 ft.

Jim Wells County—Gallagher: M. M. Miller & Sons Gallagher 5, 466 ft fr nw&swl's se½ blk 21, 320-ac lse, Casa Blanca gr, 5½-in 5216 ft, perf 5190-5212 ft, flow 109 bbls, ⅛-in, td 5216 ft.

R. W. O'Meara's Dorris 1, 440 ft fr nl, 600 ft fr sel blk 38, J. L. Wade Rch, Casa Blanca Gr, set 5½-in 5165 ft, perf 4865-67½ ft, flow 2,500,000 gas and dist, 5/32-in, td 5650 ft.

Jim Wells County—Seeligson: Texas Gulf's Hewitt 1-A, 330 ft fr s&el's 160-ac tr, se¼ sec 50, Richard Ross sur 334, 7-in 6108 ft, perf 5244-58 ft, pump 81 bbls, td 6108 ft.

Texas Gulf's Hewitt 2-A, 330 ft fr el, 1650 ft fr sl sec 50, 160-ac lse, Richard Ross sur 334, 7-in 6061 ft, perf 6088-6105 ft, flow 97 bbls, 7/64-in, td 6250 ft.

Jim Wells County—Seeligson: Transwestern's Seeligson 1-C, 660 ft fr nl, 330 ft fr el sec 45, BS&F 361, 5½-in 6248 ft, dual completion, perf 5250-55 ft, flow 98 bbls, 3/32-in; perf 6092-97 ft, flow 109 bbls 7/64-in, td 6250 ft.

Karnes County—North Porter: Cox & Hamon's Johnson 2, 330 ft fr nwl, 848 ft fr nel 128-ac lse, Victor Blanco gr, 5½-in 4026 ft, perf 3960-80 ft, flow 138 bbls, 9/64-in, td 4026 ft.

Karnes County—Hondo Creek: Phillips' San Antonio Joint Stock Land Bank 1, 330 ft fr ne&sel's 105-ac tr Carlos Martinez sur, abnd 6868 ft.

Kleberg County—Stratton: Chicago Corpn's Wardner 30, 5080 ft fr wl, 2550 ft fr sl 8862-ac lse, Paso Ancho de Arriba gr, abnd 6371 ft.

Kleberg County—Seeligson: Humble's King Ranch-Cabeza 18, 1980 ft fr wl, 1158 ft fr sl GH&H 47, 5½-in 6792 ft, flow 118 bbls, 9/64-in, td 6792 ft.

San Patricio County—Plymouth: Plymouth's Welder 124, 544 ft fr wl, 526 ft fr sl sec 50, E. Cameron sur 97, 7-in 5885 ft, perf 5882-85 ft, flow 140 bbls, 7/64-in, td 5895 ft.

LOWER TEXAS COAST WILDCATS

Jackson County—Failure: G. W. Strake's Bennett 1, 467 ft fr ne&nwl's ne80-ac of sel 60-ac, Valentin Garcia sur, 1½ mi se Bennview, abnd 6260 ft.

Karnes County—Failure: Luling Oil & Gas Co's Faith 1, 1363 ft fr nl, 330 ft fr el 202-ac tr, R. C. Brashear sur 549, abnd 4758 ft.

Live Oak County—Discovery: Continental's West 3, 849 ft fr nwl, 734 ft fr swl lot 65, blk 35, 894-ac lse, Michael Caronican sur, A135, 2 mi sw Oakville, 6½-in 1432 ft, perf 1429-31½ ft, flow 124 bbls, ¾-in, 80% oil, water, td 1432 ft. Opens Kittie field.

Victoria County—Failure: Continental's Maroney 1, 330 ft fr nw&swl's 60-ac tr, Polito Castillo gr, abnd 7017 ft.

LOWER TEXAS COAST EXTENSION

Victoria County—North McFaddin: Barnsdall's Skarda 1, 1065 ft fr swl, 1640 ft fr nwl, 330 ft fr sel of nw 111-ac, Francisco Perez sur, A92, 5½-in 6046 ft, perf 5164-75 ft, flow est 50,000,000 gas, spray dist, td 6085 ft. Extends gas prod ne.

SOUTHWEST TEXAS

Duval County—Longhorn: Hiawatha Oil & Gas Co's Miller 13, 2325 ft fr el, 2390 ft fr sl blk 23, Agua Poquita gr, A213, 7-in 4942 ft, perf 4028-33 ft, flow 45 bbls, 5/32-in, td 4963 ft.

Duval County—Garza: Highland Oil Co's Garza 2, 2310 ft fr sl, 1320 ft fr wl BS&F 524, A1826, 5½-in 3317 ft, pump 17 bbls, td 3327 ft.

Duval County—Cadena: Taylor Refining Co's Cadena 5, 660 ft fr s'ly nl, 2482 ft fr w'ly wl Calletano Rios sur 304, abnd 5432 ft.

LaSalle County—Washburn: Quintana's South Texas Syndicate 24, 800 ft fr sl, 1340 ft fr wl H&GN 68, 5½-in 5514 ft, flow 162 bbls, 7/32-in, td 5560 ft.

Starr County—Rincon: Continental's Slick 6-D, 1603 ft fr wl, 330 ft fr nl CCSD&RGNG 219, 6-in 3558 ft, perf 2709-39 ft, 450,000 dry gas, ⅜-in, td 4651 ft.

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P. O. Box 2608 Houston, Texas

SOUTHWEST TEXAS NEW PAY

Starr County—Rincon: Continental's Slick 6-E, 330 ft fr wl, 2976 ft fr nl CCSD&RGNG 537, 6-in 3935 ft, perf 3557-70 ft, flow 83 bbls, 3/16-in, td 4100 ft.

SOUTHWEST TEXAS WILDCATS

Starr County—Failure: Hagan & Stewart's Ramos 1, 660 ft fr swl, 2303 ft fr sel AB&M 150, 19 mi n Roma, abnd 1295 ft.

Webb County—Failure: O. W. Killam's Fee 1, 990 ft fr wl, 330 ft fr sl blk 39, sec 592, Los Ojuelos gr, abnd 4024 ft.

Webb County—Failure: Transwestern and Seaboard's Callaghan Land 1, 1080 ft s alg wl fr nw cor sur 1320, th 660 ft w at ra to lcn in CCSD&RGNG 1420, abnd 6260 ft.

WEST TEXAS

Andrews County — Embar - Ellenburger: Phillips' University-Andrews 39, c nw nw sec 31, blk 10, elev 3235 ft, Ellenburger 7710 ft, flow 757 bbls, ½-in, acid 250 gals perf 7980-95 ft, td 8133 ft.

Cochran County—Slaughter: Honolulu-Saltmount Oil Co's Blake 1-B, 510 ft out nec lab 13, leag 54, Oldham CSL, flow 487 bbls oil, 40 water, acid 6000 gals 5070-81 ft, td 5092 ft, pb to 5081 ft.

Superior of Cal's Dean 11, Leag 57, Martin CSL sur, flow 441 bbls 2½-in, acid 6000 gals 4915-84 ft.

Ector County—North Cowden: Texas Co's Holt 25, 1981 ft snl and 675 ft wel T&P 10, blk 43, T-1-N, flow 574 bbls, 2-in, shot 360 qts, 4505-4690 ft.

Hockley County—Slaughter: T. F. Morrow et al's Mallet 29, lab 12, leag 48, Edwards CSL, flow 866 bbls, cas, acid 10,000 gals 4850-4987 ft.

Texas Co's Slaughter 141, 580 ft out swc lab 68, leag 40, Maverick CSL, flow 1388 bbls, cas, acid 14,000 gals 4900-5020 ft.

Pecos County—Walker: J. L. Cooper et al's University-Humble 4, sw ne se sec 13, blk 16, flow 78 bbls, ¼-in, shot 60 qts 2103-24 ft.

Reagan County—Barnhart: R. R. Ogden-R. H. Hawn's University-Tidal 1-C, c se nw sec 2, blk 48, flow 1755 bbls 1-in, acid 10,000 gals Ellenburger 9010-63 ft.

Winkler County—Emperor: Skelly's Halley 58, ne se se PSL 13, blk B-12, flow 400 bbls 7/16-in, shot 207 qts 2758-2870 ft.

WEST TEXAS WILDCAT DEEPENED

Andrews County—Failure: Magnolia's Ralph 1-20, 467 ft out nec PSL 20, blk A-38, elev 3420 ft, otd 6434 ft, abnd 8416 ft.

WEST CENTRAL TEXAS

Coleman County—Novice: States Oil Corp. et al's Wilson 2, 467 ft nsl and 1401 ft wel sec 115, S. O. Berry sur, flow 162 bbls, ¾-in, 3576-3616 ft.

Coleman County—Rock Crusher: Jas. C. Ellis et al's Shields 1, 660 ft out nwc s 86-ac of 172-ac tr, Jas. P. McLean sur, elev 1946 ft, abnd 3255 ft.

Jones County — Lueders: Bridwell Oil Co.-Leland Fikes' Jennings 1-D, 1650 ft snl and 2310 ft ewl BBB&C 207, abnd 2163 ft.

Jones County: Harold G. Neely et al's Hayden 1, 2473 ft ewl and 1136 ft snl lot 3, G. Martinez sur 195, abnd 2370 ft.

Stephens County: J. D. Hancock et al's Black 1, 467 ft out swc TE&L 1144, elev 1144 ft, Bend 3252 ft, Marble Falls 3920 ft, Miss. 4369 ft, Ellen. 4437 ft, flow 22 bbls oil, 66 water, 2-in, acid 4000 gals, perf 3251-70 ft, td 4602 ft.

WEST CENTRAL TEXAS WILDCATS

Coleman County—Failure: Sohio Producing Co.'s Sealy-Smith 1, c ne nw GH&H 95, blk 2, top Gray sand 3500 ft, abnd 3560 ft.

Jones County—Failure: Watchorn O&G Co.'s Ray 1, 2570 ft snl and 330 ft ewl T&P 11, blk 17, elev 1720 ft, abnd 2825 ft.

TEXAS PANHANDLE

Gray County—Coronado Oil Co's Hopkins 1, ne ne ne H&GN 66, blk B-2, pump 175 bbls, shot 80 qts 2872-2905 ft and 360 qts 2872-2905 ft.

Hutchinson County—Phillips' McDowell-Ebling 4, c nw se AB&M sec 18, blk M-16, flow 504 bbls, lime 3170-80 ft.

WYOMING

Fremont County—Steamboat Butte: British-American Oil Producing Co's Tribal-C 1, nec Lot 4, 32-4n-1w, pump 587 bbls, ¼ mi nw extension from discovery, elv 5719 ft, 5½-in csg, 5104 ft atop Sundance; Frontier 2793 ft, Muddy 3979 ft, Dakota 4198 ft, Morrison 4625 ft, Sundance 5119 ft, td 5144 ft.

Park County—Oregon Basin: Ohio's Baston 4-A, nw sw nw 5-50n-100w, pump 80 bbls, 5½-in 3829 ft, perf Embar lime 3674-3742 ft, top Tensleep 3840 ft, td 3911 ft.

Ohio's Custer 7, ne se ne 5-51n-100w, pump 288 bbls, 5½-in 4244 ft, perf 3444-94 ft, top Embar 3420 ft, Tensleep 3608 ft, Madison 4020 ft, td 4330 ft.

Ohio's Pauline 4, ne ne ne 5-51n-100w, pump 264 bbls, 7-in 3579 ft, perf Embar 3400-3450 ft, top Embar 3378 ft, Tensleep 3572 ft, td 3640 ft.

Yale's Hancock 4, nw nw ne 5-50n-100w, recompleted, pump 240 bbls, perf Embar 3406-3490 ft, pb to 3735 from 4652 ft td where well completed for new pay zone discovery in Madison on South Dome of Oregon Basin flowing 1440 bbls, saturated Madison 4155-4300. Surface elv 5453 ft.

Sweetwater County—South Baxter Basin: Union Pacific Rail Road Co's Unit 1, nw se 26-16n-104w, 1.70 ft gas, 7-in cemented on bottom, perf Frontier 2606-27 ft, td 2749 ft.

WYOMING WILDCATS

Natrona County—Failure: Blackmore et al's Fee 1, sw sw ne 12-32n-78w, Hat Six area, abnd 850 ft.

Sublette County—Failure: Wasatch Oil Production Co's Gov't 1-D, sw se se 8-27n-113w, abnd 8005 ft.

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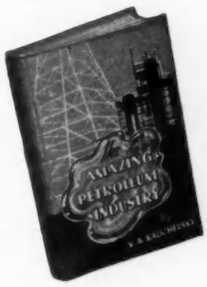

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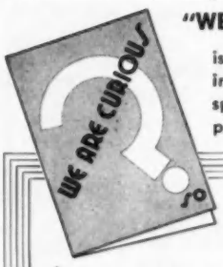

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CALIFORNIA

Fresno County: Standard's Camino 2-1, nw ne ne 31-21-15, Curry Hills area lcn.

Standard's Wells Fargo 1, se nw nw 30-21-15, Jacalitos area, lcn.

Kern County—Universal Consolidated Oil Co's 1, 23-29-21, Cymric area lcn.

J. Paul Getty's Portals 2, se sw sw 5-30-29, Edison area, lcn.

Tracy Harkness' Seale 2, sw nw nw 5-30-29, Edison area, lcn.

Trico Oil & Gas Co's Ward 1, ne sw sw 30-28-29, Round Mountain area, rig.

Shell's Utting 1, ne ne sw 7-27-19, Shale Hills area, lcn.

Tide Water Associated's KCL 54-8, sw sw ne 8-30-26, East Strand area, rig.

Texas Co's Gill 71-21 nw ne ne 21-13-16, Herminghaus area, lcn.

Texas Co's Moffat 1-7, nw nw nw 7-12-15, Firebaugh area, lcn.

Ventura County—V. R. G. Wilbur's Santa Paula 1, ne nw sw 13-3-21, South Mountain area, lcn.

COLORADO

Moffat County: I. D. Horton's Harris 1, se nw se 31-6n-99w, Gross Mountain area, dr 463 ft.

Rio Blanco County: Superior's Fee 1, ne ne se 12-4s-102w, South Douglas Creek structure, dr 926 ft.

Frontier Refining Co.'s Gov't 1, csl nw nw 32-2n-96w, White River Dome, dr 2894 ft.

ILLINOIS

Bond County—Davidson et al's Birkenstock 1, ne nw ne 8-4n-3w, lcn.

Clay County—National Assoc. Pet's Kincade 1, nw ne se 17-5n-6e, dr.

Cumberland County—Big Chief Drilling Co.'s Walk, 1, sw sw ne 8-9n-7e, lcn.

Douglas County—Sam J. Burkett's Worley 1, se nw nw 31-15n-10e, dr.

Jasper County—Big Chief Drilling Co.'s Fehrenbacher 1, se se sw 28-6n-9e, lcn.

Jefferson County—Lario Oil & Gas Co.'s Pierce-Holloway 1, c nw se ne 15-1s-4e, lcn.

Lawrence County—Ftevezanetis et al's Chistakis 1, ne se se 28-3n-12w, dr.

Richland County—S. C. Yingling et al's Richey 1, ne ne se 10-2n-10e, dr.

Pure's Rusk 1, sw se 19-3n-9e, dr.

INDIANA

Jasper County—C. R. Hutchison's Elston 1, c w½ 33-31n-5w, lcn

Laporte County—Clifford Vaughn's Zahn 1, nw ne nw 14-33n-4w, lcn.

Posey County—Bur-Kar Petroleum Co.'s Aldrich 1, c ne ne 4-6s-14w, lcn.

Cherry & Kidd's Geiger 2, nw nw ne 6-7s-14w, lcn.

Spencer County—J. P. Savage et al's Rust 1, c 4½ sw 9-6s-4w, dr.

L. L. Benoist's Richards 1, se ne se 11-7s-7w, lcn.

Sullivan County—J. W. Rudy's Wabash Valley 1, se nw nw 10-6n-10w, lcn.

KANSAS

Cowley County—Derby Oil Co and Broswood's Collinson 1, se sw sw 24-30s-4e, lcn.

Broadview Oil Co's Brooks 1, nec sw 29-3ks-7e, mich.

Colorado Petroleum Co's Johnson 1, swc ne 5-35s-8e, surf.

Dickinson County—Ingling & Parker's Miller 1, sec sw 30-14s-1e, pits.

Ellsworth County—Vickers' Janssen 1, nec sw 36-17s-8w, lcn.

Graham County—Hollow Drilling Co's Wiesner 1, nwc 31-7s-21w, lcn.

Leavenworth County—Charles Miller's Powell 1, nwc ne 31-9s-21e, mim.

Pratt County—Cities Service's McGuire 1, swc 24-27s-13w, lcn.

Reno County—Ingling & Parker and Continental's Amerine 1, nec se 35-26s-10w, c&p.

Rice County—Falcon Seaboard and Harbor Drilling Co's Blackhall 1, c w½ sw se 7-21s-8w, dk.

Rooks County—Hollow Drilling Co's Desmarteau 1, nec nw 7-9s-20w, lcn.

Russell County—Harris et al's Shaffer 1, nec nw 9-13s-11w, dr.

Stafford County—D. R. Buchanan's Lanterman 1, c n½ nw se 23-22s-12w, lcn.

KENTUCKY

Daviess County—E. M. Shaw et al's Bates 1, 8-N-28, dr.

SOUTH LOUISIANA

Acadia Parish: Union Sulphur's Daigle 1, sw Church Point, start sw 49, go n 35 deg 57 mins w alg nel for 653 ft, th s 54 deg 3 mins w at ra 416 ft in 49-7s-2e, lcn.

Acadia Parish: Continental's Homeseekers 2, Estherwood area, 2155 ft n, 464 ft swc 54-10s-1w, lcn 12,000-ft test.

MICHIGAN

Antrim County—Oil Producer's White 2, nw ne ne 17-31n-5w, rig.

Osceola County—Sun's Pierson 1, n½ ne sw 29-18n-8w, dr.

Roscommon County—American Drilling Co's State A1, s½ sw sw 19-21n-3w, rig.

Sun's State A1, n½ nw se 20-22n-2w, rig.

Wexford County—Cherokee Oil Co's Wood 1, s½ sw nw 19-22n-9w, rig.

Hassie Hunt's Zayler 1, w½ ne sw 30-22n-10w, dr.

MONTANA

Pondera County: R. C. Tarrant's McCracken 1, cse nw 12-29n-1w, Conrad Butte, rig.

R. C. Tarrant's Richardson 1, sw sw nw 28-28n-1w, Midway area, dr 316 ft.

Jarvis, Taylor & Goggin's Fee 1, cne se 7-27n-5w, Pendroy district, rur for test to Devonian.

Rosebud County: Burt Nelson Oil Developing Co's Fee 1, nw ne nw 34-7n-38e, Vanda district, dr 291 ft.

NEW MEXICO

Eddy County—Johnston & Wills' Wills 1, 3300 ft snl and 1980 ft wel 17-20s-28e, lcn.

Rio Arriba County—Phillips' El Vado 1, nw ne sw 3-27n-2e, mim for deep test.

OKLAHOMA

Cimarron County—Stanolind's Burton 1, se nw 28-3n-6ecm, lcn.

Comanche County—Northern Ordnance's Stephens 1, nw nw ne 23-3n-10w, lcn.

Hughes County—Otto H. Grimes' Sevier 1, se se se 8-8n-11e, dr.

Kay County—Prunty Prod Co's Buessing 1, ne ne sw 28-27n-1e, lcn.

Lincoln County—Magnolia Pet's Walker 1, ne ne se 13-13n-2e, c&p.

Logan County—Grey Hannum's McCroskey 1, sw nw ne 20-16n-1e, lcn.

Noble County—Sinclair Prairie's Bradberry 1, ne se nw 29-22n-1w, lcn.

Oklahoma County—L. S. Youngblood's Swatek 1, nw se 7-11n-4w, lcn.

Stanolind's Johnson 1, nw sw ne 9-13n-1e, lcn.

Pawnee County—E. S. Adkins' Kelley 1, nw nw se 7-20n-5e, lcn.

Pottawatomie County—Fain Drilling Co's No 1, nw sw ne 11-10n-3e, lcn.

Stephens County—T. H. McCasland's Gentry 1, sw ne ne 24-1n-6w, pit.

EAST TEXAS

Angelina County: Julian R. Meeker et al's Massingill 1, 2000 ft from se and 5650 ft from sw lines Santiago Erie sur, 5 mi nw Hoover, lcn.

Bowie County: Permac Oil & Gas Co.'s Tidwell 1, 704 ft wel and 618 ft nsl of e 40-ac of 87-ac tr, J. W. Deaver sur, 6 mi w and 2 mi n Fairbanks, lcn 4200-ft Paluxy test.

Houston County: Continental's Fadell 1, 1600 ft from nw and 7080 ft from ne lines M. J. Chamar sur, ½ mi ne Austonio, sp 5000-ft core test.

NORTH TEXAS

Archer County: Louis Sikes et al's Virgil Seay 1-A, 300 ft out nec blk 63, J. W. Harris sur, lcn 1500-ft test.

Clay County: Carl Johnston et al's E. D. Owen 1, 550 ft ewl and 1170 ft nsl blk 49, Specht-McCutcheon sur, rur 1300-ft test.

John L. Webb et al's Taylor 1, 200 ft w of ne cor and on n line blk 72, Bacon subdiv, lcn.

Haskell County: McMillen & Rominger's Lynn Pace 1, 560 ft out sec H&TC 39, blk 1, lcn 4000-ft test.

Wichita County: F. H. Gohlke et al's Carey 1, 950 ft from se and 150 ft from ne lines blk 10, Pratts Pasture subdiv, lcn 1200-ft test.

WEST CENTRAL TEXAS

Taylor County: Grapeland Oil Co.'s Warren 1, 1980 ft out nwc 1065-ac tr, J. W. Page sur 123, lcn 3500-ft test.

WEST TEXAS

Brewster County: Floyd C. Dodson-W. B. Hinton's Texas American Synd. 1-a, 695 ft out nec GH&SA 66, blk 10, elev 4233 ft, Delaware shale 2297 ft, Leonard 4055-4448 ft, Simpson 6733 ft, td 7785 ft, rur to recover tools and deepen to Ellenburger.

Crane County: Rio Bravo Oil Co.'s Fee 1, nw nw nw H&TC 31, blk 1, lcn 2500-ft test.

Crockett County: Ben Banner et al's Blair 1, 4414 ft snl and 692 ft ewl I&GN 43, blk 1, lcn 2200-ft test.

Menard County: B. A. Duffy et al's Clark 1, c nw ne AB&M 3, machine for 4000-ft test.

Mitchell County: M. L. Richards et al's (was Sinclair Praire) Erwin 1, nw nw nw H&TC 1, blk 25, elev 2302 ft, lime 2049 ft, td 3065 ft, mim to deepen to 4200 ft.

Pecos County: Bryce McCandless et al's Turney-Humble 1, c se se T&StL 19, blk 141, lcn 5500-ft Ellenburger test.

Bryce McCandless et al's Cordova Union-Gulf 1, c se sw H&GN 101, blk 11, lcn Ellenburger test.

Terry County: T. P. Coal & Oil Co's McCullough 1, c nw ne PSL 29, blk K, lcn San Andres test.

TEXAS GULF COAST

Fort Bend County—J. K. Dorrance and Wynn Crosby Drilling Co.'s Pure 1, ½-mi w Needville on 80-ac tr H&TC sur, A477, lcn 5500-ft test.

Liberty County—W. W. West's Fee 1, se flank Davis Hill dome, 2613 ft fr wl 586-ac tr, 2100 varas w of river, lcn 10,000-ft test.

Trinity County—American Liberty's Morrison 1, 160-ac lse, W. M. Watson sur, 4 mi nw Apple Springs, lcn 6000-ft test.

LOWER TEXAS COAST

Colorado County—J. W. Frazier, Cities Service and John G. Mayo's Gay 1, 3 mi nw Columbus, 990-ac lse, James Tomlinson lge, lcn 5500-ft Wilcox test.

Jackson County—Skelly Oil Co. and Pacific Western Oil Co.'s Sorge 1, 330 ft s, 330 ft w fr ne cor lot 119, blk 4, John Power sur, A251, lcn 8000-ft test.

Victoria County—Bridwell Oil Co's Whitney 1, 495 ft fr se&nel 943-ac tr, Desidero Garcia Gr, 1 mi s Dernal, lcn.

SOUTHWEST TEXAS WILDCATS

Live Oak County—Continental's Somserset Land 1, 330 ft fr nwl, 3075 ft fr nel of TTRR 319, A517, lcn 10,500-ft test.

Live Oak County—Henderson Coquat's Harris 1, 1320 ft fr wl, 467 ft fr nl blk 28, Richard Everett sur, A7, lcn.

Live Oak County—J. H. Durbin's Maurin 1, 1518 ft fr nel, 1152 ft fr w'ly wl 660-ac lse, Stephen Hays sur, 2 mi sw Whitsett, lcn.

Starr County—Continental's Cameron 1, 2100 fr wl, 2970 ft fr sl George W. Smith sur 138, lcn 7500 ft test.

Webb County—Texas Gulf and Phillips' Bruni 1, 330 ft fr nwl, 1650 ft fr swl 1000-ac lse, 10 mi se Pescadito, lcn.

WYOMING

Hot Springs County: Continental's Unit 1, sw nw se 23-44n-95w, Gebo Dome, rur.

Laramie County: Manewal & Bradley Oil Co's Gov't 1, sw sw se 34-19n-70w, Iron Mountain, dr 314 ft.

Uinta County: Oregon Oil Co's Fee 1, sw sw sw 13-13n-119w, Suphur Creek Dome, dr 826 ft.

Squeaks from the Bull Wheel

Addict

"My wife says that if I don't give up golf she'll leave me."

"Hard luck, I'd say."

"Yes, I'll miss her."

The Missing Talent

A Negro preacher failed to satisfy his flock and a committee from the congregation waited on him to request his resignation.

"Look here!" "What's de trouble wid mah preachin'? Don't I argufy?"

"You sho does, eldah."

"Don't I sputify concerning de Scriptures?"

"You suttinly does."

"Den whut's wrong?"

"Well, eldah, hit's dis way. You argufies and you 'sputifies, but you don't show wherein."

Witticisms

Said the scarf: "Go on ahead, I want to neck."

Said one eye to the other: "Just between us, there's something that smells."

Big rose to the little rose: "Hiya, bud!"

Executioner as he pulled the switch: "This'll kill you."

Ceiling to the wall: "Hold me up. I'm plastered."

Dentist sang to his patient: "The Yanks Are Coming."

Robber as he jumped on the scales: "Here's where I get a weigh."

One stocking to another: "So long! I gotta run."

Salmon as he took the hook: "I'll likely get canned for this."

Cub to north wind: "Don't blow so hard! I'm a little bear."

Horrifying

Two young ladies were walking. Suddenly one cut loose with a piercing shriek. "Look," she cried in amazement.

"What is so terrible?" asked her friend. "They are only midgets."

"Thank goodness. I thought for a minute they were rationing men."

Democracy at Work

An expensively dressed woman, looking slightly confused, boarded a bus. It was apparent that she was much more familiar with private cars and uniformed chauffeurs than with public transportation systems.

She handed the driver a $10 bill. He returned it, assuring her he couldn't change it. Then, while people stood behind her, patiently waiting to get on, she dredged around in a large purse, finally locating a nickel.

"Wheah do I put this? You know, I've nevah been on these buses befoah."

"Well, lady, we ain't missed you none."

Defining Enemies

A couple of Swiss journalists arrested in Tokyo protested they were neutrals.

"No, you are neutral enemies," replied the Tokyo police officer.

"What do you call the United States and Great Britain?" asked the unhappy Swiss.

"They are belligerent enemies."

"And what are Germans and Italians?"

"They are friendly enemies."

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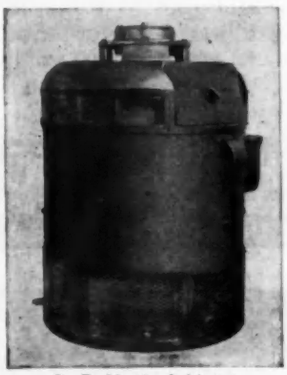
Notes for the Equipment Buyer and User

Vertical Motor

GENERAL ELECTRIC COMPANY

General Electric Company, Schenectady, New York, announces a new line of direct-current vertical motors ranging from 40 to 200 horsepower at 1750 rpm, and in equivalent ratings at other speeds.



G. E. Vertical Motor

The new motors, which are furnished for both constant and adjustable speeds, are designed for low-thrust, solid-shaft applications on pumps, machine tools, and marine underdeck auxiliaries. They are also desirable in cases where valuable floor space must be saved or the expense of gearing avoided.

The motors are of dripproof, protected construction, providing complete protection from dripping liquids and falling objects. Convenient fittings on both the upper and lower bearings simplify lubrication, and provision for the escape of excessive grease reduces the possibility of over-lubrication. A special bearing housing prevents grease from entering the motor and damaging the commutator and the windings.

The cast-iron conduit box is roomy and can be arranged for bringing the leads in at the top, bottom, or either side. Two hand-hole covers, removable without the use of tools, permit quick and easy inspection of the commutator end brushes. The ring-type base has an accurately machined rabbet and jig-drilled mounting holes, thus assuring permanent alignment with the driven machine. Sturdy lifting lugs facilitate installation.

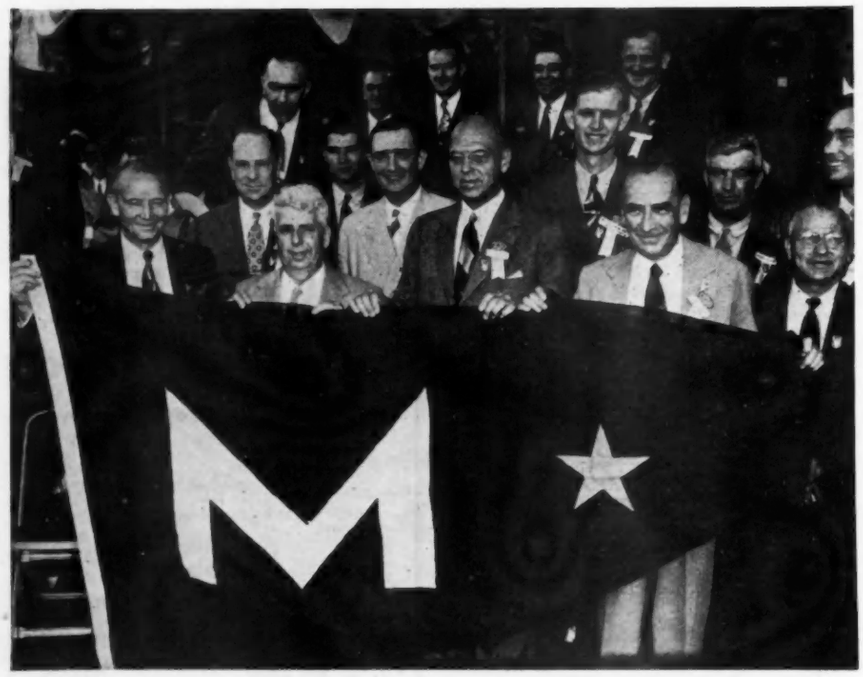
V-Belts

Allis-Chalmers Manufacturing Company, Milwaukee, Wisconsin, has recently published a number of new booklets and guides in an effort to assist maintenance engineers in their problems.

The new "Handbook on Wartime Care of V-Belts" gives full particulars on taking care of all kinds of v-belts.

"Guide to Wartime Care of Electric Motors" is filled with suggestions on how to secure and maintain better motor performance under restricted conditions of repair and upkeep.

"Handbook for Wartime Care of Centrifugal Pumps" makes specific recommendations for putting pump care on a wartime basis.



Air Reduction Company received the United States Maritime Commission "M" award, at Bethlehem, Pennsylvania, July 17. From left to right, holding the flag: Admiral Emory S. Land, Walter J. Strawn, C. S. Munson, president, and C. E. Adams, chairman of the company.

Oil Well Supply Company Discontinues Mexican Subsidiary

Oil Well Supply Company announces that its subsidiary in Mexico, Cia. Consolidated Oilwell S. A., has sold its properties and discontinued operations. Gilbert M. Davies, manager of the latter company for several years, will represent Oil Well Supply Company in Mexico.

Western Division of Dow Gets Army-Navy E Award

Great Western Division of The Dow Chemical Company was awarded the Army-Navy E at the Pittsburgh, California, plant, on July 28. This award for high achievement in the production of war materials is the sixth such honor to go to various operations in the domestic production of the Dow Company.

West Texas Acid Company To Operate Under New Owner

Independent-Eastern Torpedo Company of Tulsa has purchased the capital stock and equipment of Chemical Process Company, Breckenridge, Texas, owned principally by Paul Pitzer and C. K. West, who pioneered contract acid treatment of wells in North Central and West Texas. The acid treating unit will be operated as Chemical Process Division of Independent-Eastern Torpedo Company, according to Phil H. Liberty, general manager of the Texas-New Mexico district with headquarters at Midland.

Plastic Paint

Saverite Engineering Company, Hoboken, New Jersey, has published a bulletin on Serviron, a permanently plastic material of the consistency of thick paint used to protect metal against corrosion, pitting, rust and fungus growth. It forms a protective coating that will resist the action of these elements inside of hot or cold water tanks, boiler drums and other water-submerged surfaces.

Weld Fittings

Tube Turns, Louisville, Kentucky, announces a catalog and data book, No. III, made up of the following divisions: engineering, welded fittings, flanges, and technical. Each division is complete with full information, illustrations, charts, and installation data on the subjects covered. The technical section discusses: designation of pipe wall thicknesses by schedule numbers; pressure-temperature ratings, allowable "S" values for pipe; flexibility of pipe lines; designing expansion loops; allowance for cold springing; the flow of liquids; viscosity conversion chart; pressure-loss chart; steam flow through pipes at maximum velocity; flow of flashing mixtures; properties of pipe; dimensional tolerances; pump capacities; hardness conversion table; gas density chart; gauging horizontal cylindrical tanks; conversion tables; arc and gas welding symbols, and a glossary of terms.

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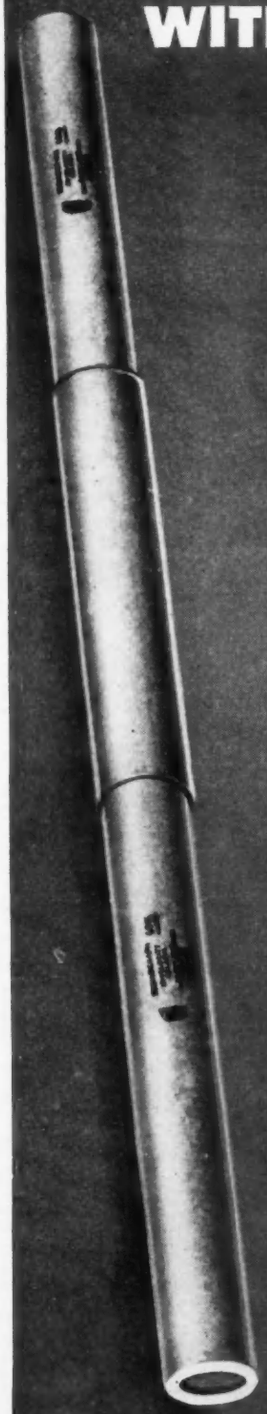

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FOREWORD BY RONALD K. DeFORD AND E. RUSSELL LLOYD

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Men in the Industry's News

O. L. FISHER has been appointed general superintendent of production and drilling, Gulf Coast division, for Continental Oil Company, with headquarters at Houston. He joined the company in 1926 as a clean-out helper in the production department, Panhandle Texas district, and subsequently held jobs as tool dresser, clerk, foreman and farm boss. On October 1, 1935, he became district superintendent at Basile, Louisiana, and was promoted from that position to assistant division superintendent, at Houston, on April 1, 1941. He succeeds Fred F. Waltermire.

R. S. HENDRIX, chief clerk for Humble Oil & Refining Company in the Lovell Lake district has been transferred to the Hardin district. L. E. Odom, chief clerk for the Hardin district, has been transferred to Lovell Lake.

MOSE ENDICOTT, landman at Shawnee for Phillips Petroleum Company, has resigned to enter the ice business at Norman. He was succeeded by Frank King.

X. J. BRANDON who has been store manager for National Supply Company at Bristow, has been made asistant district manager for the company in Tulsa. C. J. McFarland, formerly employed in the company's Seminole store, is now city salesman in Tulsa.

GEORGE L. NOBLE, JR., Houston, has been appointed as regional director of the War Production Board with headquarters at Dallas, it was announced July 27 by WPB. He has been district manager at Houston and will succeed R. Eugene Risser, who resigned in order to devote a substantial portion of his time to the operation of the Southwest Pump Company, Bonham, Texas, which he left in July, 1942, to join WPB. Noble, who has been with WPB since 1941, was formerly an oil operator in East Texas and Louisiana, and was vice president of Western Gulf Petroleum Corporation.

JAMES TANHAM, New York, vice president of The Texas Company, has been named an alternate industry member of the War Labor Board, succeeding Almon E. Roth, appointed a principal member of the board by President Roosevelt. Tanham has served as a panel member representing industry in a number of board cases.

JACK H. FINNEY has joined the Pipe Line Service Corporation, Franklin Park, Illinois, as sales representative in the Mid-Continent. He will have headquarters at Houston, utilizing the company's pipe coating and wrapping facilities at Longview and Corpus Christi. Finney has been district manager in West Texas for Dowell, Incorporated, for the past eight years.

RAYMOND WEAVER, scout for Sun Oil Company in Mississippi, has been transferred to Tallahasse, where he will serve as scout and landman for Florida. Newton Burnett, North Louisiana-Arkansas scout, will scout Mississippi with headquarters at Jackson, and will be succeeded at Shreveport by Sam Jackson, former pipe line scout in the East Texas field.

SYLVESTER L. CRONIN, former California division manager of The Pure Oil Company and retired since 1936, died July 28 at El Dorado, Arkansas. He was a native of Woodsfield, Ohio, and was with Ohio Cities Gas Company when it was merged with The Pure Oil Company.

FRED T. WHITING and Charles A. Dostal, district managers for Westinghouse Electric and Manufacturing Company, have been elected vice presidents. Whiting is in charge of the Chicago territory with headquarters in Chicago, and Dostal, the Pacific Coast District with headquarters in San Francisco. Duties and headquarters of both men are unchanged. As Northwestern District manager since 1930, Whiting has directed the company's sales activities in a territory which includes parts of 10 states. Dostal has been Pacific district manager since 1939, directing the company's sales activities in all or parts of 11 western states and in Alaska and the Hawaiian Islands. He has been with the company for nearly 37 years.

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